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Hard Red Spring & Durum Wheat Quality



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Report on Milling, Baking, and Pasta Processing 1998/1999 Crop

USDA/ARS Wheat Quality Laboratory
Cereal Crops Research, NPA
RRVARC
Fargo, ND 58105

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
NORTHERN PLAINS AREA ✓
CEREAL CROPS RESEARCH UNIT
RED RIVER VALLEY AGRICULTURAL RESEARCH CENTER (RRVARC)
FARGO, ND 58105

in cooperation with

STATE AGRICULTURE EXPERIMENT STATIONS

HARD RED SPRING AND DURUM WHEAT QUALITY

Report on Milling, Baking, and Pasta Processing

- 1998/1999 Crop^{1/}

G. A. Hareland, J. G. Wear, S. A. Radi, D. P. Puhr^{2/}, and M. Skunberg^{3/}

June, 2000

^{1/} This report represents cooperative investigations on the quality of Hard Red Spring and durum wheat cultivars from the 1998/1999 crop years. Some of the results presented have not been sufficiently confirmed to justify variety release. Confirmed results will be published through established channels. Cooperators submitting samples for analysis have been given analytical data prior to release of this report. This report is primarily a tool for use by cooperators and their official staff and to those individuals having direct and special interest in the development of agricultural research programs. Mention of a trademark name or a proprietary product does not constitute a guarantee or warranty of the product by the U. S. Department of Agriculture, and does not imply its approval to the exclusion of other products that may also be suitable. This report is not intended for publication and should not be referenced in either literature citations or quoted in publicity and advertising. Use of the data may be granted for certain purposes upon written request to the agency or agencies involved.

^{2/} Food Technologist and Physical Science Technicians, USDA/ARS Hard Red Spring & Durum Wheat Quality Laboratory, NDSU, Fargo, ND.

^{3/} Food Technician, Dept. of Cereal Science, NDSU, Fargo, ND.

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INTRODUCTION

Commercially grown cultivars and experimental lines of wheat were grown by breeders at cooperative experiment stations throughout the major hard red spring and durum wheat growing regions of the United States. Sub samples of wheat were tested for kernel, milling, flour, dough, baking, and pasta quality. In 1998/1999, 2,850 HRS and 1,680 durum wheat samples were evaluated for quality. In addition, over 100 samples of HRS wheat and 25 samples of durum, each weighing up to 450 lbs, were milled in the spring wheat Miag pilot mill and durum pilot mill, respectively, and tested for end-use quality (data are included in separate reports and publications). Breeders use data from this report primarily as an aid when selecting and releasing experimental lines for commercial production, comparing experimental lines with existing commercial cultivars, and evaluating the effects of different environmental conditions on wheat quality. Wheat producers, domestic and international markets, millers, bakers, pasta processors, and commodity groups use this report to evaluate the processing and end use potential of new wheat lines that would meet their specific needs.



Section I

Methods For Testing Hard Red Spring Wheat

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METHODS FOR TESTING HARD RED SPRING WHEAT

Test Weight Per Bushel - The weight per Winchester bushel of cleaned, dry wheat subsequent to the removal of dockage using a Carter-Day dockage tester.

1000-Kernel Weight - The weight of 1000 kernels was determined either by a Seedburo seed counter from the number of kernels in 10 g samples of cleaned, handpicked wheat or by the Single Kernel Characterization System.

Kernel Size - The percentages of the size of kernels (large, medium and small) were determined using a wheat sizer.

The sieves of the sizer were clothed as follows:

- Top Sieve - Tyler #7 with 2.92 mm opening
- Middle Sieve - Tyler #9 with 2.24 mm opening
- Bottom Sieve - Tyler #12 with 1.65 mm opening

Milling - The samples were cleaned by passing the wheat through a Carter-Day dockage tester. The clean samples were pretempered to 12.5% moisture for at least 72 hours, then tempered to 15.5% moisture ca. 16-20 hours before milling.

Samples of wheat from the Uniform Regional, Advanced, and Preliminary nurseries were milled in Brabender Quadrumat Senior mill heads. The stock from the break rolls was sifted for 60 sec on a strand sifter using #35 and #80 Tyler sieves. The throughs of the #80 sieve were classified as break flour; the overs of the #35 sieve were classified as bran; and the overs of the #80 sieve were passed through the reduction section. The reduction stock was sifted for 60 sec on a #80 Tyler sieve. The throughs were classified as reduction flour and the overs as shorts. The break and reduction flours were combined and classified as patent flour.

Wheat from the Field Plots was milled in a Buhler continuous experimental mill. The Buhler mill had been slightly modified for better comparison with commercial milling operations. Break scalping sieves were clothed with #54 stainless steel wire. Reduction scalping sieves were clothed with #58, #66 and #105 stainless steel wire for the first, second and third reductions, respectively. All flour sieves were clothed with #135 stainless steel wire. The six flour streams from the Buhler mill were combined and classified as patent flour. The extraction of good milling wheat using this flow is approximately

68% and is comparable to commercial long patent flour. At a 68% flour extraction, changes in flour ash are most sensitive to changes in percent extraction.

Hardness Test - Wheat hardness scores were determined according to AACC Method 39-70A (1995). The procedure involved grinding the wheat samples in an Udy grinder and obtaining reflectance data from a Technicon 450 near infrared analyzer. Wavelengths at 1680 nm and 2230 nm were used. Hard red spring wheat kernels generally have NIR scores between 60 and 85.

Protein Content - Wheat and flour protein was determined either by NIR reflectance or by the combustion method (AACC Method 46-30, 1995). Nitrogen values were multiplied by 5.7 to calculate protein values, which were reported on a 14%mb.

Mineral or Ash Content - Wheat or flour ash was determined by measuring the residual weight of minerals remaining after incinerating the sample for approximately 16 hours at 575⁰C. The results were reported as percentages of the sample weights. Values were reported on a 14%mb.

Mixograph Analysis - Mixograph scores were determined from 30 g of flour (as is mb) and 20 cc of water. The sensitivity spring setting was set at 10. Water absorption was adjusted according to the peak height of the mixogram. Reference mixogram patterns illustrate different dough characteristics. Arbitrary numbers are assigned to mixograms to simplify the classification. The larger numbers indicate stronger gluten characteristics of the dough.

Baking Formula and Procedure

100% flour	3% Non-fat Dry Milk
2% salt	1% instant dry yeast
5% sugar	2% shortening (Crisco, melted) - 100 g loaves
	1% shortening (Crisco, melted) - 25 g loaves

Flour was mixed to optimum dough development in National Manufacturing mixers: the micro mixer for 25 g samples and the 100 g mixer for 100 g samples. Ascorbic Acid (40 ppm) for oxidation and Fungal Amylase (Doh-Tone)(15SKB units) for enzymatic supplement were added to each sample. Dough was moulded in a Roll-Er-Up moulder. Samples undergo 3 hour fermentation, 1 hour proof, and a 20 minute bake time at 220⁰ C.

Absorption - The amount of water, expressed as percent of flour, required for optimum dough consistency.

Dough Characteristics (DC) - Empirical scores ranging from 0-6 were used to classify dough as sticky-weak (0), pliable (2), elastic (3), or bucky (6). Dough should exhibit good elastic/extensible properties for optimum handling and machining.

Crumb Color (CC) - Determined by comparing the internal crumb color of the sample bread with the crumb color of a baking standard. The standard flour was an equal blend of the variety Grandin, which was grown at several locations. Empirical scores ranging from 0-6 were used to classify crumb color as yellow (0), gray (2), dull (3), creamy (5), or bright white (6).

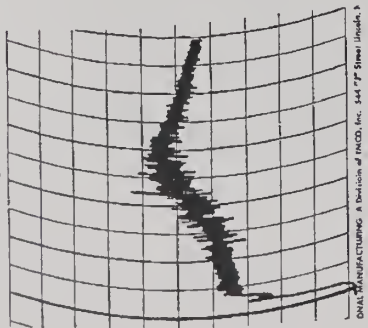
Crumb Grain (CG) - Empirical scores ranging from 0-6 were used to classify crumb grain as irregular, thick (0), open, thick (3), or fine (6).

Crumb Texture (CT) - Empirical scores ranging from 0-6 were used to classify crumb texture as harsh (0), coarse (3), or silky (6).

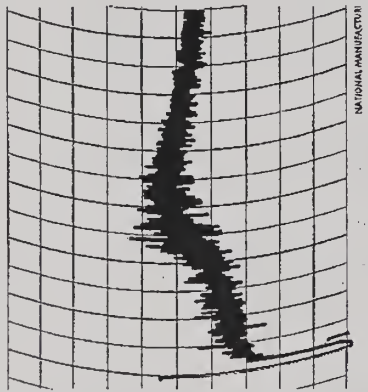
Loaf Volume - The volume (cc) of the baked loaf was determined by rapeseed displacement.

Hard Red Spring Wheat Reference Mixograms

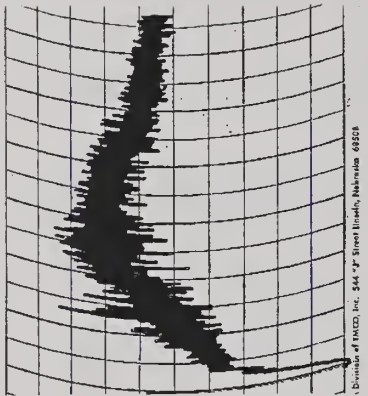
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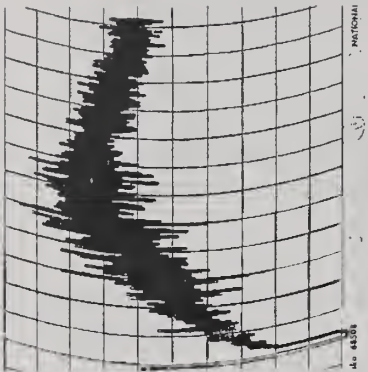
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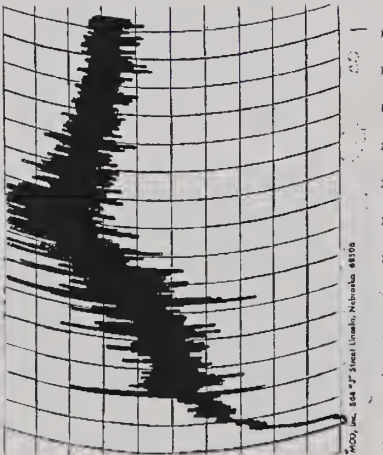
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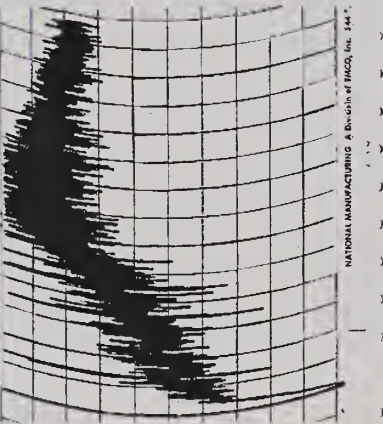
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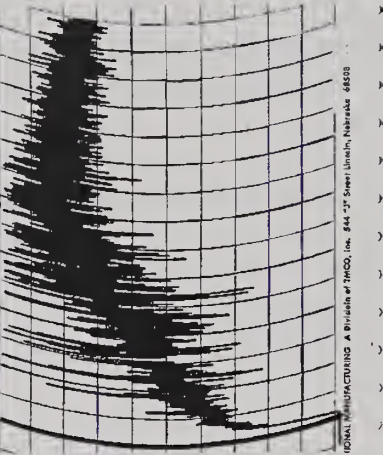
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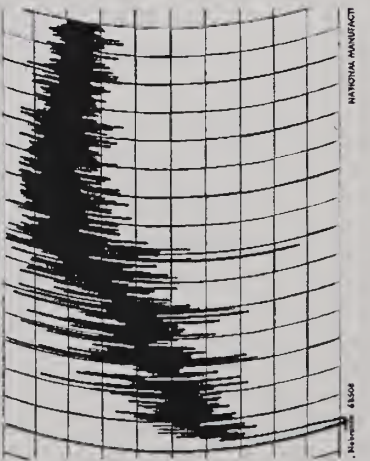
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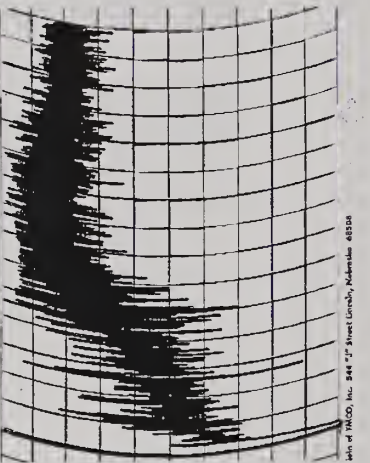
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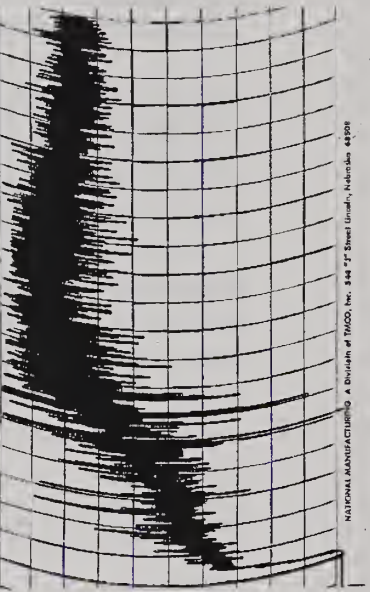
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Section II

Uniform Regional HRS Wheat Nursery

– 1998 Crop

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1998 Uniform Regional Spring Wheat Nursery

Carrington, ND

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores			Loaf Vol (cc)
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (14% mb)	Ash (%)	Ext (%)	Pro (14%mb)	Ash (%)	Abs (%)	D	C			C	G	T	
MARQUIS	59.4	25.9	40	7	1	2	8	89	75	93	14.2	1.90	65.9	12.9	0.43	56.5	2	56.5	3.5	2	5	3	5	187
CHRIS	59.4	27.3	54	5	2	3	22	73	68	100	15.5	1.76	68.4	14.5	0.40	55.3	2	57.5	3.0	2	3	5	5	190
2375	61.0	31.2	49	3	1	2	8	89	73	88	14.2	1.61	68.2	13.0	0.40	55.8	3	57.9	4.0	3	3	3	5	190
VERDE	58.4	31.5	77	1	1	5	27	67	65	95	14.4	1.74	69.5	13.1	0.43	57.3	2	58.2	2.3	1	3	3	4	178
KEENE	62.0	30.2	56	4	1	1	8	90	73	101	15.1	1.69	66.7	13.5	0.37	57.6	3	58.2	3.5	3	6	3	5	200
SD8119	61.0	32.2	68	3	0	1	8	91	71	88	14.4	1.76	64.6	13.4	0.41	55.3	3	56.4	4.0	3	3	3	5	192
SD3310	62.3	32.3	67	3	2	8	39	51	59	66	14.7	1.66	68.1	13.8	0.37	56.9	3	57.7	3.5	3	4	4	5	186
SD3345	63.1	30.8	65	2	0	0	3	97	77	91	14.2	1.65	67.8	13.0	0.40	56.2	4	57.3	5.0	3	3	5	6	180
SD3348	60.3	29.6	54	4	1	4	19	76	66	77	13.9	1.65	66.2	13.3	0.32	57.3	4	58.2	5.0	3	5	3	5	193
SD3356	61.4	27.9	54	2	1	1	7	91	76	93	14.9	1.67	68.7	13.4	0.38	60.8	4	60.9	3.0	3	3	3	5	205
MN93413	56.5	29.5	21	8	1	3	13	83	70	96	13.1	1.83	64.0	12.2	0.48	57.3	4	57.3	4.0	3	5	3	5	183
MN94055	60.5	32.6	63	4	2	12	28	58	61	75	14.0	1.80	62.2	12.9	0.38	54.3	2	54.2	2.5	2	4	5	5	175
MN97762	60.1	32.3	68	3	1	1	10	88	73	84	15.0	1.87	62.9	13.7	0.39	57.3	4	57.3	4.3	3	5	3	5	195
MN97847	62.4	29.8	44	3	1	6	26	67	64	78	15.0	1.76	64.2	14.1	0.36	54.6	2	54.6	3.8	2	4	3	4	188
MN97237	60.7	29.4	68	2	1	1	6	92	78	92	12.9	1.75	63.5	11.3	0.44	54.3	2	56.4	3.0	2	5	3	4	171
ND691	60.1	28.7	64	3	1	2	11	86	72	88	14.6	1.60	64.9	13.7	0.38	57.6	4	58.2	4.5	3	4	3	5	192
ND694	61.0	30.7	60	2	1	3	17	79	69	92	15.3	1.72	65.1	14.3	0.38	55.8	3	56.0	3.5	3	5	3	5	200
ND695	61.0	30.9	71	5	1	3	21	75	67	86	14.4	1.73	64.1	13.3	0.33	55.3	3	55.1	3.5	2	4	5	5	192
ND705	62.6	31.4	73	2	0	4	19	77	67	99	16.3	1.60	64.9	15.4	0.36	58.2	4	58.2	3.5	3	5	3	6	203
ND706	60.3	31.5	78	2	0	2	10	88	73	88	14.7	1.69	64.0	13.6	0.39	57.3	4	58.2	4.0	3	5	3	6	202
N93-0119	61.4	32.2	72	2	0	1	7	92	75	110	14.8	1.62	62.4	12.6	0.40	55.5	2	56.3	3.5	3	5	3	5	200
N95-0026	60.4	31.8	73	2	1	3	10	86	71	88	14.4	1.78	64.9	13.2	0.39	55.3	4	55.1	5.0	3	3	3	5	201
N95-0144	59.0	32.9	65	3	1	2	14	83	71	91	13.6	1.80	63.5	12.5	0.43	58.2	3	58.2	3.5	3	5	4	5	200
N95-0204	60.1	30.5	63	4	0	3	10	87	73	99	14.8	1.88	64.6	13.6	0.45	59.0	3	59.1	3.0	3	5	3	5	203
N95-0264	59.2	30.3	52	6	0	2	16	82	70	85	13.1	1.83	62.9	12.2	0.41	53.2	2	54.5	4.0	2	3	3	5	187
N95-0330	59.9	30.6	43	2	1	2	7	90	74	100	14.9	1.91	66.4	13.8	0.44	55.5	3	56.3	4.0	3	5	3	6	209
MT9609	60.6	33.8	64	2	1	2	16	81	69	90	14.6	1.64	64.9	13.3	0.39	55.0	2	54.5	3.5	3	5	5	5	208
WA007802	58.0	34.0	61	4	3	9	44	44	58	78	13.7	1.64	63.8	12.4	0.38	52.6	2	52.9	4.5	2	5	3	5	187
WA007824	58.1	32.3	43	4	6	6	28	60	62	65	13.7	1.82	58.9	13.0	0.38	53.2	3	54.5	6.0	3	5	3	5	213
BZ987-331	58.2	33.5	58	4	4	11	42	43	57	64	13.2	1.78	59.0	12.7	0.39	55.0	3	58.2	6.8	3	4	3	5	196
SWP965-001	60.2	34.2	83	2	1	3	21	75	66	93	14.9	1.81	65.4	13.7	0.39	55.8	4	56.3	4.5	3	5	3	5	189
RL4788	61.2	35.4	83	2	0	5	24	71	66	90	14.2	1.51	65.7	13.0	0.34	55.0	3	56.3	5.0	2	5	3	5	195
BW693	60.0	34.9	82	1	2	8	36	54	60	97	15.3	1.80	57.3	14.0	0.37	55.5	2	56.3	2.3	2	5	5	5	197

USDA/ARS Wheat Quality Laboratory, Fargo, ND

1998 Uniform Regional Spring Wheat Nursery

Crookston, MN

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores					Loaf Vol (cc)
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (14% mb)	Ash (14% mb)	Ext (%)	Pro (14%mb)	Ash (14%mb)	Abs (%)			Pat	D	C	C	G	
MARQUIS	52.8	25.1	26	20	7	11	19	63	63	69	15.6	2.25	58.3	15.2	0.58	57.6	4	58.4	3.5	3	3	3	4	197
CHRIS	55.2	25.7	30	16	3	11	23	63	64	88	15.9	1.97	60.0	15.3	0.44	57.6	3	58.4	2.8	3	3	3	5	192
2375	57.8	31.7	51	6	3	6	25	66	65	81	15.2	1.82	60.5	13.8	0.41	56.9	3	56.6	3.0	3	3	3	5	191
VERDE	57.0	28.3	62	7	2	6	18	74	67	81	13.8	1.69	64.0	12.8	0.35	56.5	3	56.3	3.5	3	3	3	5	195
KEENE	58.5	29.4	48	7	2	3	11	84	72	87	15.2	1.82	59.0	14.2	0.37	58.2	3	58.4	2.5	3	3	5	4	196
SD8119	56.6	29.8	65	5	2	3	17	78	68	82	15.2	1.85	60.0	14.2	0.41	57.9	3	58.4	2.5	3	3	3	4	197
SD3310	58.2	31.7	52	4	8	17	36	39	55	76	15.2	1.88	55.5	15.5	0.32	58.2	3	58.4	3.0	3	3	3	3	197
SD3345	57.8	31.2	64	6	1	3	13	83	71	88	15.7	1.86	55.9	14.7	0.36	58.6	3	58.6	3.3	3	3	3	6	191
SD3348	57.8	31.0	68	7	1	6	22	71	66	84	15.3	1.72	56.1	14.5	0.34	58.6	4	58.6	3.5	3	3	3	3	200
SD3356	57.0	26.6	48	2	0	3	9	88	76	92	15.3	1.99	62.9	13.8	0.42	58.2	4	58.3	3.5	3	3	3	5	197
MN93413	57.9	32.9	63	7	1	5	21	73	66	92	14.3	1.84	58.5	13.0	0.45	57.6	4	57.8	3.0	2	2	5	5	188
MN94055	58.7	31.2	67	3	3	7	25	65	63	72	13.4	1.84	57.2	12.7	0.42	55.0	2	55.1	2.3	2	2	4	3	165
MN97762	57.5	28.5	58	4	1	3	5	91	76	88	14.2	1.96	57.4	13.2	0.44	55.5	3	55.7	3.5	3	3	3	3	195
MN97847	60.2	31.9	49	2	2	10	36	52	60	86	14.6	1.87	57.3	14.5	0.39	54.3	2	54.2	3.0	2	3	3	3	188
MN97237	59.7	26.0	37	3	0	2	4	94	83	90	12.6	1.69	59.0	11.2	0.44	53.5	2	58.4	3.0	2	3	3	5	176
ND691	58.1	27.6	41	10	1	1	7	91	79	98	14.5	1.70	57.5	13.7	0.41	55.8	3	55.9	5.0	3	3	3	3	193
ND694	60.7	30.1	70	4	0	2	12	86	73	97	15.5	1.71	55.9	14.5	0.37	55.3	3	55.3	3.8	3	3	6	6	192
ND695	59.5	32.5	76	4	0	4	15	81	69	92	15.5	1.79	56.7	14.5	0.37	56.5	3	56.4	3.0	2	3	5	6	182
ND705	60.3	30.9	69	3	1	4	15	80	69	96	16.8	1.84	58.6	15.9	0.40	57.6	3	58.2	3.0	3	3	3	3	208
ND706	56.8	29.1	68	5	1	3	11	85	75	83	15.7	1.83	55.8	14.9	0.44	55.5	3	55.5	4.0	3	3	3	3	195
N93-0119	56.8	28.8	54	10	0	1	4	95	83	101	14.5	1.83	53.1	12.8	0.46	54.3	3	54.4	4.3	2	3	5	4	170
N95-0026	56.8	29.9	63	4	0	5	8	87	75	85	14.5	1.84	58.3	13.6	0.43	56.5	4	56.3	4.5	3	3	3	5	210
N95-0144	57.2	31.8	61	4	1	5	13	81	70	81	13.0	1.81	60.8	11.8	0.46	53.8	2	54.4	3.8	2	5	6	5	195
N95-0204	58.1	29.2	64	7	1	2	11	86	75	90	15.2	1.94	59.5	14.5	0.46	57.6	3	58.2	4.0	3	3	3	3	192
N95-0264	58.8	30.3	68	4	1	2	11	86	72	75	12.8	1.87	54.5	11.9	0.42	55.3	2	55.1	3.5	2	3	3	5	192
N95-0330	56.4	26.0	37	10	1	2	7	90	81	100	14.4	1.92	59.2	13.3	0.46	58.2	4	58.2	3.5	3	3	5	5	194
MT9609	55.1	28.8	42	11	5	4	16	75	70	85	14.1	1.83	55.9	13.1	0.46	55.0	2	55.1	3.0	2	3	4	4	189
WA007802	51.8	27.1	38	10	5	11	23	61	62	62	14.1	1.97	53.1	13.3	0.49	55.5	3	55.5	4.5	2	4	1	3	182
WA007824	54.3	29.8	54	8	8	11	20	61	60	57	13.8	1.96	48.8	13.0	0.45	51.9	2	53.9	5.0	2	3	3	6	201
BZ987-331	55.8	31.7	73	3	2	6	19	73	66	84	17.0	2.23	58.0	16.0	0.45	57.9	3	58.2	3.3	2	3	3	5	185
SWP965-001	53.5	30.8	67	7	17	18	30	35	50	44	13.5	2.00	51.2	12.8	0.51	56.9	3	56.7	4.5	3	4	3	3	195
RL4788	59.5	33.3	81	3	1	3	22	74	67	93	15.2	1.83	58.7	14.2	0.39	55.5	3	55.5	4.5	3	5	3	6	188
BW693	58.2	34.3	81	2	1	11	29	59	61	93	15.4	1.99	58.3	14.5	0.44	57.9	3	58.2	2.0	3	3	3	3	190

1998 Uniform Regional Spring Wheat Nursery

Langdon, ND

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores				Loaf Vol (cc)	
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (14% mb)	Ash (%)	Ext (%)	Pro (14%mb)	Ash (%)	Mix Abs (%)			Mix Pat	D	C	C		G
MARQUIS	59.5	33.6	86	1	1	15	28	56	60	95	15.8	1.89	54.7	14.8	0.42	56.9	3	58.2	3.0	3	3	3	4	188
CHRIS	58.4	29.1	67	2	1	9	27	63	64	102	16.2	1.81	54.8	15.8	0.39	61.4	4	62.5	2.5	3	3	3	5	212
2375	61.0	33.7	75	3	1	4	18	77	68	92	14.1	1.77	58.3	13.1	0.40	58.2	3	59.3	3.0	3	3	3	5	190
VERDE	58.9	30.8	77	2	2	2	16	80	70	93	13.5	1.70	58.7	12.6	0.40	58.6	3	60.4	3.5	3	3	3	5	203
KEENE	61.0	32.0	76	2	1	4	13	82	72	111	16.0	1.81	53.1	14.8	0.38	58.2	2	59.3	2.8	3	5	3	5	197
SD8119	60.3	32.9	44	2	0	4	9	87	73	107	14.7	1.67	54.5	13.6	0.42	57.6	3	58.2	3.3	3	4	5	5	198
SD3310	59.4	31.3	70	4	0	1	6	93	79	109	14.2	1.77	64.8	12.9	0.44	56.5	2	57.1	4.0	2	4	6	5	195
SD3345	62.4	32.1	81	1	1	1	5	93	76	98	14.6	1.74	64.2	13.9	0.41	57.6	2	58.2	3.3	3	3	5	5	195
SD3348	59.9	31.8	67	2	1	5	29	65	64	80	14.9	1.76	65.4	14.3	0.35	56.5	4	57.2	4.5	3	3	3	5	194
SD3356	60.6	26.2	56	5	0	1	6	93	79	98	14.6	1.77	66.4	13.6	0.39	57.9	3	59.7	3.5	3	3	3	5	190
MN93413	62.2	36.5	79	2	1	3	17	79	67	97	13.4	1.77	67.1	12.5	0.45	55.5	2	56.4	4.0	2	3	3	4	190
MN94055	60.1	36.7	83	2	1	10	30	59	62	80	13.9	1.77	57.6	13.1	0.42	53.8	1	56.9	2.5	2	3	5	4	185
MN97762	60.3	27.7	64	5	1	1	4	94	85	93	13.5	1.78	59.7	12.5	0.43	55.8	3	56.6	4.0	3	3	4	5	195
MN977847	62.4	33.2	73	6	2	16	36	46	58	84	14.6	1.88	59.0	14.4	0.38	56.5	1	57.2	3.0	2	4	3	5	195
MN97237	61.4	29.2	66	3	1	2	4	93	81	97	12.8	1.72	59.2	11.8	0.42	57.3	3	58.2	3.5	2	4	3	6	173
ND691	59.9	31.5	76	2	0	1	10	89	74	104	14.4	1.64	58.9	13.6	0.40	59.3	5	60.4	4.0	3	3	3	6	208
ND694	61.2	32.7	85	2	1	9	28	62	64	96	16.3	1.68	57.5	16.0	0.38	60.0	4	61.9	3.0	3	5	3	6	213
ND695	59.5	33.1	85	1	1	7	23	69	65	89	15.8	1.86	53.3	15.7	0.38	59.0	3	60.4	3.0	3	4	3	6	220
ND705	61.8	33.5	85	2	1	7	30	62	62	108	17.6	1.88	60.7	17.0	0.39	60.5	4	60.4	3.3	3	6	3	6	242
ND706	61.6	34.5	90	1	1	1	12	86	72	102	15.2	1.70	58.6	15.1	0.40	58.6	4	60.4	3.3	3	4	5	6	218
N93-0119	58.7	31.0	68	2	0	2	4	94	80	104	14.4	1.75	55.9	13.1	0.43	56.9	3	58.5	3.5	2	1	3	5	199
N95-0026	59.0	31.0	72	3	0	2	9	89	76	86	14.2	1.77	56.5	13.2	0.40	55.8	4	58.5	4.0	3	3	3	5	204
N95-0144	59.6	34.5	82	3	1	1	14	84	72	95	13.8	1.62	56.2	12.7	0.42	55.5	2	56.4	3.5	2	3	3	6	211
N95-0204	60.2	30.3	73	4	0	2	8	90	75	95	14.8	1.80	55.7	14.1	0.45	55.8	3	56.6	3.5	3	3	5	4	193
N95-0264	59.0	33.7	75	4	1	4	19	76	68	74	13.4	1.92	51.4	12.6	0.43	55.8	2	56.5	3.5	2	1	5	5	210
N95-0330	58.0	26.8	40	6	1	2	6	91	80	88	14.3	2.01	57.7	13.6	0.45	60.0	4	60.8	3.5	3	3	5	6	218
MT9609	59.8	33.3	78	2	2	4	18	76	68	96	14.0	1.60	61.4	13.0	0.40	56.5	2	57.0	3.0	2	3	5	5	213
WA007802	57.2	35.3	77	3	3	13	31	53	60	77	13.3	1.65	57.9	12.8	0.41	55.8	3	56.5	4.5	2	3	3	5	220
WA007824	55.9	35.7	75	3	9	17	38	36	54	56	13.4	1.92	51.9	13.1	0.45	58.2	4	60.4	5.0	3	1	5	5	237
BZ987-331	59.4	33.8	83	2	1	3	19	77	69	85	15.8	1.96	61.0	15.0	0.42	57.6	4	61.2	3.5	3	3	5	5	210
SWP965-001	61.4	34.2	86	2	1	7	23	69	65	100	14.5	1.62	61.0	13.8	0.34	56.5	4	59.3	4.8	3	3	3	6	194
RL4788	59.4	36.9	89	1	2	10	40	48	59	101	15.9	1.86	61.1	15.2	0.38	59.6	3	60.4	2.5	3	2	3	6	218
BW693	57.9	35.7	77	2	5	9	24	62	62	65	13.8	1.75	49.8	13.0	0.39	53.8	3	56.3	4.5	3	5	3	5	203

USDA/ARS Wheat Quality Laboratory, Fargo, ND

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1998 Uniform Regional Spring Wheat Nursery

Minot, ND

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores			Loaf Vol (cc)		
			LG (%)	SM (%)	SKCS		HI INDEX	NIR Hard	Wheat		Flour		Mix		D	C			G	T				
					A	B			C	D	Pro (14%mb)	Ash (14%mb)	Ext (%)	Pro (14%mb)							Abs (%)		Pat	
MARQUIS	59.9	29.6	76	2	1	10	27	62	70	103	14.6	1.78	59.0	14.5	0.34	56.2	3	56.5	3.0	3	3	5	5	194
CHRIS	60.1	28.4	71	4	1	7	27	65	68	103	14.7	1.59	61.3	14.5	0.37	55.8	3	56.7	3.5	3	3	3	4	180
2375	59.7	32.3	66	4	2	6	29	63	67	93	13.6	1.57	63.8	12.8	0.37	55.8	3	56.7	3.0	2	3	3	4	187
VERDE	59.8	32.5	79	3	3	18	35	44	59	92	14.2	1.66	65.7	13.1	0.36	56.2	2	57.3	3.0	2	3	3	4	197
KEENE	60.3	28.9	53	4	1	3	16	80	74	101	15.0	1.66	58.8	14.2	0.39	57.3	2	58.2	2.8	3	3	5	4	197
SD8119	60.2	32.1	78	3	1	3	21	75	68	97	14.6	1.64	62.6	13.7	0.39	56.9	2	57.0	3.0	3	3	5	4	175
SD3310	61.4	31.4	75	5	5	21	37	37	59	78	15.0	1.73	61.4	14.9	0.33	56.2	2	56.2	3.0	3	3	5	4	202
SD3345	61.0	29.9	73	3	0	3	12	85	76	92	14.5	1.58	61.3	13.8	0.36	59.0	3	59.0	3.0	3	3	5	6	195
SD3348	59.4	29.3	58	6	1	9	29	61	66	90	14.9	1.46	62.9	14.3	0.32	59.0	3	59.0	3.5	3	3	3	4	201
SD3356	60.4	27.2	49	5	1	3	9	87	74	96	15.7	1.76	60.7	15.0	0.37	60.5	3	60.5	2.5	3	3	3	4	205
MN93413	59.2	31.9	66	4	3	7	27	63	64	92	12.3	1.61	64.2	11.4	0.37	53.8	3	56.2	5.0	2	5	3	4	170
MN94055	59.8	32.9	78	2	4	19	36	41	57	81	14.1	1.58	61.4	13.5	0.38	56.9	2	56.9	2.0	2	4	3	4	176
MN97762	60.4	28.6	68	5	1	1	10	88	76	100	14.0	1.60	61.2	13.1	0.40	58.6	3	58.6	4.0	3	2	3	4	180
MN97847	61.2	31.0	63	4	4	16	38	42	59	89	14.5	1.61	57.8	14.1	0.35	57.6	2	58.2	2.3	3	3	3	4	175
MN97237	61.4	29.5	71	4	0	2	9	89	76	98	12.9	1.73	62.3	12.0	0.38	57.6	2	58.2	2.5	2	3	3	4	170
ND691	59.9	29.8	70	3	1	4	11	84	74	100	14.9	1.57	60.6	14.1	0.38	57.6	4	60.5	4.0	3	3	3	5	198
ND694	61.3	30.1	73	5	1	3	18	78	73	92	15.1	1.72	60.0	14.7	0.37	58.2	4	58.2	3.5	3	5	5	5	190
ND695	59.6	31.9	78	4	1	7	28	64	67	92	15.1	1.59	57.3	14.6	0.36	57.6	3	58.2	3.0	3	2	5	6	200
ND705	60.6	28.9	66	5	1	5	19	75	74	100	16.6	1.71	57.3	16.6	0.43	60.3	3	60.4	3.0	3	2	3	5	230
ND706	59.0	28.4	71	4	0	1	9	90	75	94	15.6	1.73	55.5	14.8	0.42	58.2	4	60.4	4.3	3	3	3	5	220
N93-0119	59.8	30.9	72	3	0	1	8	91	76	105	15.0	1.52	59.9	13.6	0.41	57.6	3	58.5	3.0	3	3	5	5	191
N95-0026	57.8	29.1	64	4	0	1	13	86	74	97	15.4	1.75	59.4	14.5	0.43	57.9	4	58.5	4.3	3	3	5	5	212
N95-0144	58.0	31.8	67	6	0	5	27	68	68	101	14.1	1.68	59.5	13.2	0.46	57.3	2	57.3	3.0	3	3	4	5	196
N95-0204	59.0	30.5	77	3	0	3	16	81	70	101	15.8	1.65	61.1	15.3	0.44	60.5	3	60.4	2.5	3	3	3	5	210
N95-0264	59.0	28.7	77	4	1	6	23	70	66	86	13.7	1.77	59.7	13.4	0.45	56.5	3	56.5	4.3	3	4	3	5	195
N95-0330	59.4	28.6	48	6	0	5	9	86	73	108	14.8	1.70	63.5	14.3	0.45	60.8	5	60.8	4.0	3	3	3	5	218
MT9609	59.3	31.8	64	4	2	6	22	70	65	96	13.3	1.59	60.7	12.5	0.43	55.8	2	55.8	3.3	2	3	2	4	200
WA007802	57.4	32.2	66	3	3	18	42	37	56	82	13.5	1.53	60.5	12.9	0.38	57.9	3	57.9	4.0	3	3	3	5	214
WA007824	58.4	31.5	67	3	10	15	36	39	54	66	13.2	1.69	52.6	12.5	0.39	55.5	3	57.4	6.0	3	6	3	5	210
BZ987-331	57.8	32.5	72	3	10	30	32	28	51	60	13.1	1.69	56.4	12.9	0.37	55.8	4	57.3	5.8	3	3	5	5	188
SWP965-001	60.3	33.8	84	3	2	6	30	62	66	103	14.8	1.87	62.4	14.1	0.41	57.3	4	58.5	3.8	3	5	5	5	202
RL4788	60.2	31.5	78	3	3	10	31	56	66	99	14.6	1.65	60.0	13.9	0.38	56.5	3	58.5	3.5	3	3	3	5	191
BW693	58.3	31.7	74	4	4	12	40	44	60	100	15.1	1.88	61.0	14.4	0.38	58.2	3	58.2	2.5	3	3	3	5	208

1998 Uniform Regional Spring Wheat Nursery

Prosper, ND

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Mix Abs (%)	Bake Abs (%)	Mix Time (min)	Rating Scores			Loaf Vol (cc)			
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (14% mb)	Ash (14% mb)	Ext (%)	Pro (14%mb)				Ash (14%mb)	D	C		C	G	T
MARQUIS	58.0	26.0	51	4	1	7	20	72	67	85	14.3	1.88	59.0	13.4	0.40	51.9	2	55.2	3.5	3	3	4	194	
CHRIS	58.3	25.4	52	7	0	4	29	67	67	93	15.4	1.86	61.7	14.3	0.36	54.3	3	54.4	3.5	3	5	4	195	
2375	58.3	29.4	34	5	2	7	22	69	65	87	14.4	1.83	59.5	13.3	0.39	53.8	3	55.2	4.0	3	5	4	197	
VERDE	58.4	26.7	61	4	0	5	15	80	70	88	13.4	1.78	62.4	12.2	0.33	53.8	3	54.4	4.0	3	5	4	186	
KEENE	60.8	28.5	46	6	2	3	11	84	71	98	14.5	1.78	58.1	13.2	0.35	54.6	3	55.6	3.5	3	5	6	4	192
SD8119	57.8	28.6	63	2	0	2	15	83	72	98	14.8	1.77	59.3	13.6	0.40	55.5	3	56.5	3.5	3	3	5	5	196
SD3310	59.6	29.6	69	3	3	4	16	31	49	58	14.5	1.75	54.8	13.9	0.34	55.5	3	56.5	3.5	3	4	5	5	200
SD3345	59.9	27.8	56	4	2	1	3	94	78	97	14.8	1.85	55.5	13.7	0.38	58.2	3	59.3	3.3	3	3	4	5	202
SD3348	57.9	27.7	55	6	1	4	24	71	68	83	14.3	1.64	59.4	13.1	0.32	55.5	3	56.5	4.5	3	3	5	5	202
SD3356	56.2	23.2	21	22	1	1	8	90	77	96	14.9	1.84	59.0	13.5	0.35	57.3	4	58.2	5.0	3	3	5	5	194
MN93413	55.6	26.3	28	10	1	2	13	84	72	91	14.4	1.90	57.5	13.1	0.45	56.2	3	57.1	3.3	2	3	5	5	182
MN94055	57.4	25.8	54	4	3	9	29	59	63	72	14.8	2.12	52.6	14.1	0.42	55.3	2	56.5	2.5	2	1	6	4	196
MN97762	53.9	21.5	37	13	1	2	7	90	82	91	13.8	1.87	59.0	12.5	0.45	55.0	3	56.5	4.5	2	3	6	4	192
MN97847	57.8	24.5	16	14	4	13	25	58	61	68	15.8	1.97	56.2	15.3	0.40	57.3	3	58.2	3.0	3	4	3	5	208
MN97237	61.2	25.5	48	6	0	3	6	91	79	97	13.5	1.87	62.1	12.1	0.41	55.8	3	56.5	3.5	2	3	5	5	178
ND691	58.3	25.5	31	7	0	1	4	95	78	100	15.0	1.74	62.3	13.9	0.38	57.9	5	54.4	5.3	3	3	5	5	200
ND694	59.9	26.6	49	5	1	0	9	90	74	97	15.4	1.85	59.0	13.9	0.38	56.5	4	57.1	3.5	3	2	3	6	200
ND695	56.6	26.8	39	7	1	4	12	83	70	77	15.1	1.87	56.2	14.0	0.37	56.2	2	57.1	3.0	3	1	6	6	192
ND705	60.5	27.0	54	4	2	1	7	90	74	105	15.7	1.88	62.1	14.6	0.37	56.2	3	56.5	3.5	3	6	6	5	220
ND706	57.0	25.6	54	4	0	1	3	96	80	101	15.5	2.17	56.6	14.2	0.43	55.5	4	56.5	5.0	3	3	6	5	206
N93-0119	55.9	24.4	24	3	0	1	3	96	84	107	15.2	1.90	56.1	13.5	0.44	56.5	3	56.5	3.5	3	3	5	5	205
N95-0026	56.0	24.5	38	7	1	3	6	90	79	100	14.9	1.79	59.6	13.2	0.42	55.8	4	55.8	4.0	3	3	5	5	196
N95-0144	57.2	26.2	43	5	0	2	7	91	75	102	14.0	1.88	61.7	12.6	0.45	54.6	3	54.6	4.0	2	5	3	5	190
N95-0204	56.5	24.3	28	9	0	1	4	95	82	91	15.7	1.97	59.4	14.9	0.45	57.3	4	58.3	3.0	3	3	3	5	213
N95-0264	57.2	25.9	37	9	2	4	18	76	69	78	13.4	2.14	54.9	12.0	0.44	53.2	3	54.5	3.5	3	1	6	5	200
N95-0330	53.0	22.2	6	20	1	2	7	90	81	96	15.4	2.09	58.0	14.4	0.51	58.2	5	59.2	3.5	3	3	5	5	208
MT9609	56.8	27.8	34	8	1	3	14	82	72	86	14.0	1.75	58.1	12.8	0.40	52.6	2	54.3	3.5	2	3	5	4	202
WA007802	53.2	25.2	21	8	2	6	17	75	68	72	13.9	1.89	55.0	12.6	0.39	53.2	3	54.3	4.5	2	3	6	4	198
WA007824	52.3	24.2	6	21	11	11	22	56	60	61	14.6	2.05	48.6	13.8	0.41	52.6	3	54.3	7.0	3	6	3	5	227
BZ987-331	53.2	27.2	40	6	2	11	30	57	60	51	14.2	2.04	51.9	13.3	0.40	54.3	4	55.7	7.3	3	4	3	5	204
SWP965-001	57.0	28.2	65	2	0	1	7	92	77	87	15.1	2.07	59.6	14.2	0.38	55.3	4	56.5	3.5	3	3	3	5	212
RL4788	58.3	27.2	57	4	0	3	14	83	70	92	14.7	1.90	60.6	13.5	0.33	52.9	3	56.5	4.8	3	3	3	5	186
BW693	57.2	27.8	59	3	2	2	10	37	51	86	14.8	1.98	62.1	13.8	0.37	56.5	3	57.2	2.5	3	3	4	5	210

USDA/ARS Wheat Quality Laboratory, Fargo, ND

1998 Uniform Regional Spring Wheat Nursery

Brookings, SD

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores				Loaf Vol (cc)	
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (12.9% mb)	Ash (1.98 mb)	Ext (%)	Pro (14%mb)	Ash (%)	Abs (%)			Pat	D	C	G		T
MARQUIS	56.8	23.4	18	12	2	1	5	92	79	83	12.9	1.98	57.1	11.9	0.43	47.6	1	52.2	4.0	2	3	3	5	170
CHRIS	58.8	26.7	44	11	1	3	11	85	75	87	13.6	1.77	57.2	13.2	0.37	53.8	3	55.3	3.5	3	5	5	5	182
2375	61.5	34.0	66	4	0	3	7	90	74	94	12.7	1.68	56.5	11.7	0.36	51.9	2	54.5	4.0	2	3	3	5	173
VERDE	59.5	30.7	73	4	0	2	15	83	73	93	12.4	1.80	67.0	11.2	0.40	53.8	2	55.6	3.5	3	5	3	5	172
KEENE	62.0	29.9	61	4	0	0	6	94	77	94	13.4	1.80	62.7	11.9	0.37	55.0	3	58.3	3.3	3	5	3	6	185
SD8119	60.6	30.2	70	5	0	1	4	95	77	101	13.2	1.79	63.2	12.0	0.42	53.5	3	56.4	3.0	2	4	6	6	175
SD3310	62.2	31.3	76	4	1	10	28	61	61	70	12.7	1.81	57.9	12.3	0.36	52.2	2	54.5	3.5	2	3	6	5	176
SD3345	62.7	31.6	82	3	0	1	2	97	80	99	13.2	1.75	61.0	11.8	0.40	52.6	3	56.3	3.8	2	3	3	5	173
SD3348	60.1	30.1	65	7	0	2	17	81	71	79	13.1	1.69	58.4	12.1	0.34	53.2	3	55.3	4.8	3	3	5	5	173
SD3356	61.4	27.8	53	6	0	1	5	94	77	100	13.5	1.76	62.9	12.5	0.37	55.8	4	57.4	3.5	3	3	3	5	180
MN93413	58.4	29.4	46	10	1	3	5	91	77	92	11.9	1.78	59.5	10.5	0.47	52.2	3	56.7	3.5	2	4	5	5	163
MN94055	60.6	30.3	59	6	1	4	17	78	69	69	12.7	1.76	53.3	11.8	0.42	51.6	2	56.7	3.0	2	4	5	5	184
MN97762	60.2	27.7	56	9	1	0	4	95	83	97	12.5	1.82	58.8	11.0	0.44	51.9	2	56.7	3.5	2	3	5	5	168
MN97847	62.5	30.4	65	4	2	6	28	64	63	74	13.4	1.77	54.6	12.9	0.37	52.2	2	54.5	3.0	2	4	6	5	173
MN97237	61.6	27.4	68	6	0	0	2	98	88	95	11.6	1.66	56.1	10.4	0.42	50.8	2	54.5	4.0	2	4	3	5	161
ND691	58.9	27.2	69	10	1	1	5	93	84	91	13.0	1.80	53.8	11.9	0.40	50.2	2	54.5	6.5	2	3	5	5	172
ND694	62.3	31.1	78	2	0	1	3	96	80	93	13.5	1.66	53.8	12.2	0.38	53.2	3	54.5	3.5	2	5	5	6	176
ND695	61.4	32.4	47	4	1	4	13	82	69	82	13.2	1.72	50.5	12.3	0.36	55.5	3	56.3	3.0	3	2	3	6	210
ND705	62.8	30.9	76	3	1	2	14	83	71	97	14.6	1.85	59.4	13.7	0.40	56.9	4	58.2	3.0	3	5	3	6	210
ND706	59.1	28.5	67	6	0	1	4	95	81	91	13.6	2.08	56.0	12.7	0.41	52.9	3	54.4	4.0	2	4	2	5	196
N93-0119	59.7	28.9	54	4	0	0	1	99	87	109	13.7	1.85	54.5	11.8	0.43	54.6	3	56.3	4.0	2	3	3	5	180
N95-0026	57.0	28.1	45	8	0	1	5	94	81	100	14.4	2.02	53.1	13.1	0.44	55.8	4	56.9	4.5	2	3	3	5	190
N95-0144	58.5	31.4	63	6	1	2	8	89	76	88	13.0	1.87	55.3	12.0	0.45	54.6	3	56.3	3.0	2	3	3	5	187
N95-0204	59.4	28.2	51	9	1	0	5	94	81	96	14.1	2.03	57.4	12.8	0.46	56.5	4	58.2	3.0	3	3	3	5	200
N95-0264	61.0	32.2	68	4	1	2	13	84	72	75	12.5	1.93	53.3	11.5	0.43	52.6	2	54.4	3.5	2	1	4	5	183
N95-0330	58.0	26.0	39	9	1	2	4	93	81	90	13.7	2.05	57.3	12.8	0.45	56.5	5	58.2	4.5	3	2	5	6	203
MT9609	59.0	32.7	64	5	1	4	9	86	72	92	13.7	1.77	56.9	12.8	0.42	53.5	3	55.0	3.0	3	3	4	5	213
WA007802	56.5	28.5	41	9	2	7	15	76	68	71	12.4	1.81	53.6	11.4	0.40	52.2	2	55.5	4.5	3	3	4	5	201
WA007824	58.0	30.8	54	6	6	7	21	66	64	54	12.9	1.78	54.5	11.9	0.41	50.8	2	54.4	5.5	2	5	5	5	192
BZ987-331	57.4	34.7	73	3	6	8	36	50	59	50	13.1	1.76	46.4	12.5	0.39	52.9	4	56.9	5.0	2	3	4	5	188
SWP965-01	59.4	31.6	67	4	1	1	8	90	76	91	14.2	1.98	57.1	13.3	0.40	52.6	3	56.9	4.5	3	3	5	5	207
RL4788	62.0	35.3	83	3	1	4	15	80	69	89	13.9	1.70	58.4	12.8	0.35	53.8	3	56.0	4.0	3	3	5	5	189
BW693	60.3	34.8	67	4	1	6	28	65	65	87	14.2	1.89	59.5	12.9	0.41	56.9	3	58.2	3.0	3	3	3	5	210

1998 Uniform Regional Spring Wheat Nursery

Selby, SD

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores			Loaf Vol (cc)		
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (14% mb)	Ash (%)	Ext (%)	Pro (14%mb)	Ash (%)	Abs (%)			Pat	D	C		G	T
MARQUIS	56.1	24.6	45	9	4	5	21	70	65	77	13.9	1.77	61.2	12.8	0.41	50.8	2	54.5	3.0	2	3	3	4	180
CHRIS	57.3	25.0	53	6	4	10	29	57	62	77	14.5	1.79	59.0	13.6	0.37	52.6	3	54.5	3.0	3	3	3	5	186
2375	57.6	29.6	55	5	3	10	41	46	58	69	13.5	1.61	58.9	12.4	0.36	51.6	3	52.9	4.0	2	5	3	4	177
VERDE	57.4	29.2	70	6	3	12	35	50	59	82	13.3	1.80	64.6	12.3	0.34	52.9	3	54.5	3.3	2	3	5	5	178
KEENE	61.0	28.8	59	6	0	2	16	82	70	93	14.4	1.52	59.1	12.8	0.34	55.5	4	56.8	3.3	3	5	3	5	183
SD8119	56.8	27.7	65	4	0	4	20	76	68	86	13.8	1.64	60.6	12.5	0.38	53.2	3	54.5	3.0	2	4	5	5	177
SD3310	60.3	30.8	79	3	6	22	42	30	53	62	13.6	1.59	58.4	12.7	0.30	52.2	2	54.5	3.5	2	3	6	5	175
SD3345	59.7	28.5	67	3	1	4	8	87	71	82	13.8	1.68	58.6	12.5	0.34	52.2	2	54.5	4.0	2	3	5	5	170
SD3348	58.1	27.9	66	4	2	13	33	52	60	69	14.1	1.57	55.5	12.7	0.29	52.2	3	54.5	5.0	2	3	5	6	167
SD3356	58.2	26.2	52	6	0	2	14	84	71	81	14.2	1.75	60.4	12.9	0.34	54.3	3	56.4	3.0	2	3	4	6	168
MN93413	56.8	29.1	55	6	2	15	32	51	60	80	12.6	1.53	59.5	11.0	0.39	49.2	2	51.4	3.5	2	3	6	5	162
MN94055	58.6	30.7	70	5	7	19	38	36	54	70	13.4	1.59	56.9	12.5	0.34	51.6	2	52.8	2.5	2	3	6	5	172
MN97762	57.5	26.5	56	9	1	2	7	90	76	82	12.9	1.53	55.9	11.5	0.37	50.2	2	52.3	5.0	2	5	5	4	159
MN97847	59.4	29.1	60	4	6	18	39	37	55	64	13.8	1.52	55.3	13.0	0.38	50.2	2	52.3	3.3	2	3	3	4	160
MN97237	59.4	27.6	66	4	1	3	9	87	73	81	12.7	1.70	57.3	11.1	0.32	51.6	2	53.9	3.5	2	3	6	5	158
ND691	58.0	26.5	56	6	1	1	8	90	75	81	13.4	1.52	57.8	12.1	0.36	51.9	2	55.2	5.0	3	3	3	5	168
ND694	60.9	30.5	73	3	0	4	15	81	70	89	15.0	1.67	59.3	13.6	0.33	53.2	3	56.8	3.0	3	5	3	6	188
ND695	59.9	30.8	78	3	2	6	26	66	64	83	14.5	1.68	57.5	13.2	0.34	53.2	3	54.7	3.3	3	3	3	6	188
ND705	60.9	30.1	76	2	1	2	19	78	68	97	16.4	1.87	55.4	14.9	0.36	57.9	4	59.8	3.0	3	3	3	6	203
ND706	57.3	28.8	80	4	1	5	13	81	71	87	14.3	1.70	56.5	13.2	0.40	53.8	3	55.9	3.5	3	2	5	6	202
N93-0119	58.6	30.0	72	5	0	1	7	92	75	96	14.3	1.61	56.0	12.2	0.34	53.8	2	55.4	3.3	2	3	6	5	186
N95-0026	55.2	28.6	63	5	2	2	17	79	69	78	14.4	1.77	56.3	13.2	0.37	53.8	3	55.4	4.0	2	3	6	6	195
N95-0144	56.0	32.8	73	4	2	6	28	64	64	79	13.8	1.65	60.2	12.7	0.40	55.8	3	57.5	3.0	3	3	6	6	195
N95-0204	56.2	29.4	71	4	3	4	19	74	69	87	15.0	1.77	56.3	13.7	0.42	56.5	3	57.9	2.5	3	3	5	6	203
N95-0264	56.1	26.5	40	10	4	11	29	56	61	66	13.4	1.84	48.1	12.6	0.41	51.3	2	53.8	4.0	2	1	3	6	185
N95-0330	55.7	26.4	36	7	3	3	12	82	70	80	14.3	2.01	55.0	13.0	0.44	53.2	3	54.4	4.0	3	3	3	5	210
MT9609	56.5	30.4	58	5	4	5	25	66	63	82	14.1	1.68	54.3	13.1	0.38	51.6	2	52.7	3.8	2	3	5	5	200
WA007802	55.3	31.3	65	5	8	23	44	25	51	64	12.9	1.61	58.3	12.0	0.30	53.6	2	55.1	4.0	2	3	5	5	183
WA007824	55.9	31.2	58	9	22	25	35	18	44	52	13.4	1.69	49.8	12.7	0.34	51.3	2	52.4	5.3	2	5	3	5	202
BZ987-331	56.2	36.3	84	4	12	41	37	10	45	57	12.9	1.57	55.9	12.3	0.33	51.6	2	54.7	5.0	2	3	3	5	170
SWP965-001	57.4	32.2	83	2	2	8	35	55	61	74	14.6	1.75	60.7	13.3	0.37	52.9	3	54.4	3.5	2	3	3	5	190
RL4788	59.5	32.3	84	3	1	4	25	70	64	85	14.6	1.69	59.7	13.6	0.30	54.3	3	55.9	3.5	3	3	3	6	197
BW693	55.8	31.1	74	3	3	17	44	36	56	71	15.1	1.77	58.8	13.9	0.37	56.5	3	58.2	2.3	3	3	3	6	230

USDA/ARS Wheat Quality Laboratory, Fargo, ND

1998 Uniform Regional Spring Wheat Nursery

Morris, MN

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores				Loaf Vol (cc)
			LG (%)	SM (%)	SKCS				HI	NIR Hard	Pro (14% mb)	Ash (14% mb)	Ext (%)	Pro (14%mb)	Ash (%)	Abs (%)	Mix Pat	D			C	C	T		
					A	B	C	D																INDEX	
MARQUIS	58.4	27.8	55	5	1	2	12	85	71	77	14.0	1.94	56.2	13.1	0.46	53.2	3	55.8	3.0	3	3	4	189		
CHRIS 2375	58.4	28.0	66	4	1	3	17	79	69	91	15.3	1.86	55.8	13.7	0.39	55.8	3	57.9	2.5	3	3	5	198		
	60.1	33.9	73	2	0	3	22	75	68	82	14.3	1.84	55.5	12.7	0.38	55.5	3	57.3	3.5	3	3	5	182		
VERDE	59.0	32.2	80	3	0	1	23	76	69	86	14.1	1.78	61.1	12.5	0.37	54.3	2	56.8	3.0	2	3	5	211		
KEENE	61.3	32.9	74	2	1	1	6	92	74	99	14.7	1.85	56.8	13.2	0.37	56.5	3	58.4	3.0	3	5	6	202		
SD8119	61.0	33.0	84	2	0	0	15	85	73	94	14.0	1.75	57.3	12.5	0.41	55.8	3	57.9	3.0	2	3	6	194		
SD3310	62.2	34.0	81	2	2	10	33	55	60	76	14.4	1.70	57.5	13.3	0.34	55.0	2	56.2	2.5	2	3	5	196		
SD3345	63.2	32.2	85	1	0	0	4	96	76	89	14.1	1.75	58.6	12.3	0.39	53.5	3	59.1	3.0	2	3	5	181		
SD3348	60.8	31.8	76	3	1	2	17	80	69	83	13.6	1.90	62.1	12.3	0.34	53.2	3	58.5	4.3	3	5	5	198		
SD3356	60.5	26.5	51	6	0	1	4	95	80	108	14.8	1.78	61.6	12.9	0.37	56.2	3	58.4	2.5	3	3	5	200		
MN93413	56.8	31.1	57	2	1	3	19	77	70	93	13.5	1.85	61.3	12.3	0.46	53.5	3	56.8	2.8	3	3	5	187		
MN94055	60.5	33.9	75	5	0	6	26	68	65	71	13.7	1.79	50.2	12.4	0.39	50.5	1	53.5	2.5	2	3	5	183		
MN97762	60.3	31.3	69	4	0	1	8	91	81	92	13.8	1.79	53.8	12.3	0.42	52.2	2	57.3	3.5	3	3	5	182		
MN97847	62.2	32.6	70	3	1	7	28	64	64	81	14.7	1.80	53.1	13.7	0.38	55.5	2	57.3	2.5	3	3	5	195		
MN97237	61.4	29.6	66	4	0	2	5	93	80	97	13.2	1.79	58.1	11.6	0.42	52.9	2	55.6	2.5	2	3	5	180		
ND691	60.1	28.9	57	5	0	2	8	90	78	88	14.2	1.68	57.8	12.8	0.38	59.0	5	60.3	3.0	2	3	5	192		
ND694	62.0	32.7	79	2	0	2	14	84	70	93	15.0	1.81	55.6	13.9	0.37	58.6	4	60.3	3.5	3	3	6	193		
ND695	62.0	32.4	78	2	0	3	14	83	70	101	16.5	1.86	58.1	15.0	0.38	59.0	4	58.5	2.5	3	5	3	232		
ND705	60.2	32.1	79	2	0	1	17	82	70	85	14.5	1.78	56.6	13.5	0.38	57.6	3	58.6	2.5	3	3	6	198		
ND706	58.2	29.4	72	3	0	3	11	86	74	80	16.0	2.01	55.5	15.0	0.44	57.6	5	59.1	3.3	3	3	5	235		
N93-0119	57.9	29.4	62	6	0	1	1	98	82	102	14.6	1.87	55.2	13.0	0.45	56.9	4	58.4	3.0	3	3	6	200		
N95-0026	59.1	32.0	69	2	0	2	12	86	73	86	15.0	1.89	55.7	13.4	0.41	58.2	5	60.5	2.5	3	4	5	208		
N95-0144	58.2	33.8	75	4	0	2	13	85	72	80	13.6	1.78	56.4	12.4	0.46	57.3	3	58.4	3.0	2	3	5	202		
N95-0204	58.2	30.3	70	5	1	2	6	91	75	92	15.4	2.02	54.5	14.1	0.47	59.0	4	60.5	2.5	3	4	3	210		
N95-0264	57.8	29.0	55	6	1	2	10	87	74	69	13.9	1.88	44.8	12.6	0.41	55.3	3	56.4	3.0	3	4	3	197		
N95-0330	57.4	26.7	39	9	0	1	5	94	81	91	14.9	1.93	56.2	13.5	0.42	57.6	5	59.1	3.0	3	2	3	213		
MT9609	59.7	33.3	67	4	0	2	9	89	72	81	13.8	1.84	54.5	12.9	0.46	55.5	3	56.6	3.0	3	3	5	220		
WA007802	55.5	29.1	48	7	2	6	19	73	67	70	14.1	1.93	51.4	13.2	0.41	57.3	4	58.4	4.0	3	4	6	230		
WA007824	55.3	30.6	49	8	8	14	27	51	58	56	13.7	2.04	42.7	12.8	0.35	52.9	3	58.4	5.0	3	3	6	220		
BZ987-331	57.3	33.0	73	2	3	11	30	56	61	52	13.9	1.87	45.3	13.0	0.36	56.5	5	58.4	6.5	3	3	6	204		
SWP65-001	59.6	34.0	82	2	0	2	13	85	71	82	16.2	1.97	56.9	15.0	0.36	57.3	4	58.4	4.0	3	5	3	219		
RL4788	60.5	33.6	81	2	0	2	18	80	68	93	15.1	1.79	58.7	13.5	0.32	56.5	4	58.4	3.5	2	4	6	208		
BW693	59.4	34.7	82	2	1	7	29	63	64	89	14.9	1.97	55.9	13.8	0.36	58.6	4	60.5	2.5	3	3	6	225		

1998 Uniform Regional Spring Wheat Nursery

St. Paul, MN

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores					Loaf Vol (cc)
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (14% mb)	Ash (14% mb)	Ext (%)	Pro (14%mb)	Ash (%)	Abs (%)			Pat	D	C	C	G	
MARQUIS	53.7	23.9	29	14	3	4	11	82	70	70	13.8	2.08	51.7	12.9	0.52	53.2	3	3.0	3	5	5	186		
CHRIS	55.4	26.1	46	12	1	4	9	86	76	87	15.6	2.43	54.2	14.6	0.60	56.5	3	3.0	3	5	3	6	204	
2375	58.6	32.3	65	4	1	2	12	85	72	84	15.1	1.96	55.9	13.7	0.40	56.2	3	3.0	3	5	3	6	190	
VERDE	57.1	29.0	62	6	0	2	13	85	72	91	14.4	1.94	58.2	13.0	0.38	55.5	3	2.8	3	3	3	6	211	
KEENE	59.3	28.3	50	8	1	0	6	93	77	96	15.1	1.91	53.5	13.5	0.40	58.2	4	3.0	3	5	3	6	202	
SD8119	58.2	31.8	72	4	0	3	15	82	71	83	15.1	1.93	54.9	13.9	0.42	57.3	3	2.5	3	3	3	6	201	
SD3310	59.4	31.3	63	4	4	21	44	31	53	66	14.6	2.01	49.0	14.3	0.35	56.9	3	2.5	3	3	3	6	195	
SD3345	60.0	31.5	68	5	1	1	11	87	74	94	15.2	1.88	54.9	14.0	0.42	57.6	3	3.0	3	3	3	6	203	
SD3348	59.0	30.1	64	6	1	10	25	64	64	75	14.7	1.89	52.9	13.5	0.33	55.3	4	4.0	3	3	3	6	190	
SD3356	58.0	25.7	40	10	1	2	10	87	75	83	15.5	1.96	56.3	14.0	0.36	59.0	4	2.8	3	3	3	6	190	
MN93413	54.5	28.6	36	12	1	3	12	84	72	82	13.9	2.10	52.4	12.6	0.48	56.5	4	2.5	2	3	3	5	179	
MN94055	56.4	28.9	49	10	6	8	28	58	61	62	14.4	1.95	45.5	13.3	0.38	54.6	2	2.5	2	4	5	5	193	
MN97762	57.0	27.1	45	11	0	2	8	90	80	88	14.5	1.81	53.3	12.9	0.43	56.9	4	2.5	2	3	3	5	181	
MN97847	60.9	31.8	58	5	3	12	32	53	60	78	15.1	2.00	50.5	14.1	0.37	56.9	2	2.0	2	3	3	6	180	
MN97237	60.8	29.1	64	4	1	2	4	93	78	87	13.4	1.87	52.4	11.5	0.40	55.3	3	2.5	2	3	5	5	169	
ND691	57.8	27.2	45	5	0	2	4	94	78	78	13.8	1.79	52.6	12.8	0.36	56.9	5	3.5	2	3	3	5	183	
ND694	60.6	30.4	72	4	0	1	10	89	74	88	14.7	1.91	50.7	13.4	0.37	56.5	4	2.5	2	5	3	6	190	
ND695	59.0	28.8	70	2	3	5	16	76	69	83	14.8	1.83	45.0	13.8	0.36	57.3	4	2.5	3	4	3	6	195	
ND705	61.4	30.4	74	3	0	2	11	87	72	100	15.9	1.95	57.3	14.2	0.38	58.2	4	2.5	3	3	3	6	196	
ND706	57.8	29.2	72	3	1	3	11	85	72	86	15.5	2.08	54.3	14.8	0.40	58.2	4	2.5	3	3	5	6	208	
N93-0119	55.1	26.2	44	12	0	2	7	91	80	89	15.7	1.98	50.2	13.6	0.41	57.6	4	2.5	3	3	5	5	200	
N95-0026	57.0	30.8	66	5	1	8	16	75	68	85	15.0	1.96	54.7	13.6	0.36	57.6	5	3.0	3	3	3	6	210	
N95-0144	57.3	33.7	65	5	1	4	25	70	66	93	14.3	1.85	53.5	12.7	0.40	58.6	3	2.5	3	3	3	6	205	
N95-0204	55.2	28.2	51	5	1	2	10	87	74	90	15.8	2.04	45.3	14.7	0.45	57.6	3	2.5	3	3	5	6	212	
N95-0264	58.1	31.0	62	3	1	4	20	75	67	81	13.6	1.89	50.7	12.5	0.41	56.9	2	2.5	3	4	3	6	182	
N95-0330	56.2	27.6	37	3	2	2	11	85	73	89	15.2	1.93	58.8	14.1	0.43	59.6	5	2.5	3	3	3	5	207	
MT96609	57.3	33.1	64	4	3	6	21	70	65	86	14.9	1.86	52.6	13.5	0.43	55.8	3	2.5	3	5	3	6	213	
WA007802	54.0	28.3	42	10	3	6	27	64	63	68	14.2	1.84	49.8	13.0	0.39	59.0	4	2.5	3	3	5	5	205	
WA007824	53.2	28.0	30	15	12	17	32	39	54	54	13.8	1.88	37.3	13.1	0.37	53.2	4	4.5	3	3	5	5	213	
BZ987-331	54.2	31.5	47	10	7	21	39	33	54	49	15.0	1.95	45.8	14.1	0.37	58.6	7	5.0	3	6	3	6	197	
SWP965-001	57.4	33.8	79	2	2	7	19	72	66	87	16.6	1.94	51.6	15.7	0.38	58.6	5	2.5	3	3	3	6	202	
RL4788	59.2	32.4	75	3	2	6	19	73	67	90	14.9	1.90	57.7	13.8	0.34	58.2	5	3.0	3	3	3	6	197	
BW693	56.5	31.7	65	3	1	8	32	59	62	83	15.3	1.78	54.7	14.3	0.34	60.0	4	2.5	3	5	3	6	218	

1998 Uniform Regional Spring Wheat Nursery

Dickinson, ND

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Mix		Bake		Rating Scores				Loaf Vol (cc)	
			LG (%)	SM (%)	SKCS Distribution				HI INDEX	NIR Hard	Wheat (14% mb)		Flour (%)		Mix (%)		Abs (%)	Pat	D		C			
					A	B	C	D			Pro	Ash (14% mb)	Ext (%)	Pro (14% mb)	Ash (%)	Abs			Mix	Time (min)	C	G		T
MARQUIS	60.1	26.2	52	6	1	5	19	75	68	86	14.3	1.41	58.1	13.3	0.30	56.9	3	58.5	3	3	3	4	185	
CHRIS	58.2	24.0	37	11	1	3	18	78	70	95	15.8	1.44	61.1	15.2	0.30	59.0	4	60.4	3	3	3	4	200	
2375	59.6	29.5	45	5	0	2	17	81	71	87	14.6	1.47	61.8	13.4	0.30	58.6	4	60.4	3	3	3	4	192	
VERDE	60.5	31.2	75	3	2	9	26	63	63	100	13.8	1.27	65.6	12.5	0.27	58.6	3	55.9	3	3	5	4	186	
KEENE	62.4	29.8	55	4	0	3	13	84	71	87	15.2	1.31	58.4	14.4	0.25	60.3	4	60.0	3	3	5	6	209	
SD8119	59.0	27.1	37	8	2	2	9	87	72	92	15.1	1.57	63.1	13.8	0.33	59.0	4	56.5	3.0	3	3	4	195	
SD3310	60.5	27.6	43	8	4	16	45	35	55	65	15.2	1.45	58.6	14.8	0.31	60.5	4	57.6	3.0	3	3	5	194	
SD3345	62.4	28.7	64	3	0	1	7	92	74	96	15.2	1.38	60.3	13.9	0.31	60.0	4	56.5	2.8	3	3	5	187	
SD3348	59.1	28.0	40	7	1	5	28	66	65	77	14.6	1.34	62.9	13.9	0.27	59.6	5	55.3	3.5	3	3	4	188	
SD3356	61.4	25.5	40	6	0	2	7	91	76	102	15.0	1.37	64.2	13.7	0.30	61.4	4	59.1	2.5	3	5	5	186	
MN93413	56.1	26.4	20	14	1	2	10	87	73	90	13.8	1.52	60.0	12.7	0.38	57.6	4	57.6	3.0	2	3	6	180	
MN94055	60.2	29.2	47	9	3	8	25	64	64	76	14.5	1.52	54.9	13.6	0.33	56.5	2	56.5	2.5	3	4	3	202	
MN97762	57.6	24.5	17	14	0	4	6	90	77	93	14.9	1.46	55.2	13.8	0.39	60.8	5	60.7	3.0	3	3	5	198	
MN97847	61.4	29.1	44	5	4	15	32	49	58	73	14.7	1.41	60.7	14.6	0.30	58.8	3	58.6	2.5	3	3	4	176	
MN97237	57.8	24.0	13	16	0	2	8	90	78	87	14.4	1.57	58.6	13.2	0.37	59.6	4	58.5	3.0	2	4	3	185	
ND691	55.8	22.9	11	23	2	4	11	83	73	87	15.8	1.55	61.0	15.0	0.38	61.1	5	58.6	5.0	3	4	3	207	
ND694	61.2	28.5	56	5	1	6	16	77	70	88	15.3	1.41	60.2	14.7	0.32	58.2	3	57.2	3.0	3	3	5	216	
ND695	59.5	27.8	53	6	1	7	23	69	65	82	14.9	1.44	58.5	14.1	0.31	58.6	3	56.9	2.5	3	3	5	208	
ND705	59.9	24.7	20	10	1	3	9	87	72	98	16.3	1.47	62.2	15.1	0.38	59.3	5	58.4	3.5	3	5	6	225	
ND706	57.2	25.9	57	7	1	3	8	88	74	85	15.4	1.41	59.2	14.6	0.35	60.0	4	58.4	3.0	3	5	6	201	
N93-0119	58.2	26.4	43	10	0	2	4	94	76	103	15.0	1.47	56.8	13.4	0.36	60.8	3	58.7	2.8	3	3	5	199	
N95-0026	58.0	27.7	49	8	2	5	9	84	73	91	14.8	1.45	61.9	13.4	0.37	59.6	4	58.4	3.0	3	3	5	195	
N95-0144	30.4	30.4	51	7	1	5	15	79	69	88	14.3	1.44	60.7	13.2	0.37	59.6	4	58.4	3.0	2	3	5	185	
N95-0204	58.1	27.1	39	8	1	3	11	85	75	89	15.5	1.62	61.3	14.8	0.37	60.8	4	58.7	3.0	3	2	3	208	
N95-0264	58.2	26.8	54	8	0	3	16	81	69	82	14.1	1.54	60.4	13.1	0.39	57.6	3	55.2	3.0	2	1	3	198	
N95-0330	58.6	26.6	27	12	0	5	8	87	73	99	15.0	1.51	61.6	14.1	0.37	59.3	5	58.4	3.0	3	4	5	215	
MT9609	59.4	30.6	59	7	1	2	16	81	70	90	14.3	1.39	58.4	12.6	0.33	56.5	3	55.2	2.5	3	5	5	193	
WA007802	56.5	28.4	42	4	3	14	40	43	57	73	14.8	1.49	60.2	13.9	0.32	57.9	3	56.3	3.0	2	5	3	197	
WA007824	60.2	33.1	62	5	7	12	33	48	57	62	12.9	1.49	51.4	12.3	0.33	55.0	4	52.7	4.0	2	5	5	191	
BZ987-331	58.7	31.0	67	6	3	22	37	38	56	57	14.1	1.51	56.7	13.6	0.39	59.0	5	57.2	4.0	2	3	4	177	
SWP965-001	60.1	29.8	72	5	1	5	26	68	67	84	15.8	1.39	62.4	14.9	0.32	58.6	3	56.6	2.5	3	3	2	193	
RL4788	60.6	31.0	74	5	1	8	28	63	64	89	15.4	1.44	60.4	14.6	0.30	57.6	3	55.4	3.0	3	3	5	192	
BW693	56.6	27.4	47	8	3	10	31	56	62	86	15.5	1.62	62.4	15.2	0.34	61.1	4	59.2	2.5	3	3	5	210	

USDA/ARS Wheat Quality Laboratory, Fargo, ND

1998 Uniform Regional Spring Wheat Nursery

Sidney, MT, Rep #1

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores				Loaf Vol (cc)
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (14% mb)	Ash (14% mb)	Ext (%)	Pro (14%mb)	Ash (14%mb)	Abs (%)	Pat	D			C	C	G	T	
MARQUIS	58.7	27.3	40	5	3	5	28	64	63	84	14.8	1.75	58.4	13.9	0.37	54.6	3	54.6	3	2.8	3	3	3	4	181
CHRIS	59.1	24.8	41	6	0	2	8	90	91	95	14.4	1.78	58.5	13.4	0.39	55.8	2	56.3	2	2.5	2	3	4	5	178
2375	61.0	33.6	73	1	0	10	24	66	75	90	13.2	1.55	60.3	12.4	0.35	56.5	2	57.2	2	2.5	2	4	3	4	167
VERDE	60.3	31.2	78	2	1	10	30	59	71	88	13.0	1.77	62.9	11.6	0.31	55.0	2	56.3	2	2.5	2	4	3	4	160
KEENE	62.2	27.8	47	2	0	1	6	93	96	89	13.5	1.64	55.9	12.2	0.32	55.8	3	56.8	3	3.0	3	3	6	5	168
SD8119	59.4	29.8	69	2	1	4	23	72	72	101	13.6	1.57	59.9	12.7	0.33	56.9	3	57.4	3	2.5	3	4	5	5	172
SD3310	62.2	31.8	77	1	2	12	36	50	67	80	13.9	1.62	55.2	13.9	0.28	56.5	2	57.2	2	2.5	3	4	3	5	181
SD3345	61.4	30.8	75	2	0	2	16	82	81	94	14.6	1.61	52.8	14.4	0.31	60.0	3	60.7	2.5	2.5	3	4	6	5	183
SD3348	59.0	30.4	40	6	2	13	26	59	73	86	13.4	1.54	63.0	12.5	0.27	58.2	4	58.6	3.0	3.0	2	4	3	4	161
SD3356	60.5	27.2	46	4	0	2	10	88	86	98	14.5	1.68	58.0	13.4	0.34	59.3	2	60.4	2.5	2.5	3	3	3	4	167
MN93413	58.1	29.6	38	6	2	5	20	73	74	89	12.1	1.56	60.4	10.8	0.38	54.6	3	57.5	3.0	3.0	2	3	5	4	162
MN94055	60.6	31.0	54	4	3	10	27	60	70	75	13.2	1.75	57.9	12.2	0.33	54.3	2	57.5	2.5	2.5	3	4	5	4	170
MN97762	59.9	29.9	61	5	0	3	19	78	70	94	13.5	1.57	57.7	12.7	0.37	57.6	3	58.3	3.5	3.5	2	4	5	5	180
MN97847	61.1	32.0	77	3	2	13	29	56	73	87	13.6	1.78	57.1	12.8	0.35	54.3	2	55.1	3.0	3.0	2	4	5	4	156
MN97237	61.1	26.1	47	7	1	1	9	89	76	90	13.7	1.58	57.7	12.8	0.37	56.5	3	59.3	3.5	3.5	2	4	3	5	180
ND691	59.0	28.0	30	5	2	5	21	72	76	79	12.6	1.49	60.6	12.0	0.33	55.0	3	57.2	4.0	4.0	2	4	6	5	167
ND694	61.9	31.4	76	2	1	3	17	79	78	92	14.2	1.72	56.1	13.0	0.34	57.6	3	59.3	2.5	2.5	3	5	4	6	176
ND695	61.6	32.0	81	2	0	6	22	72	76	79	13.3	1.67	51.9	12.1	0.32	54.3	2	57.9	3.0	3.0	3	4	3	6	180
ND705	62.4	28.3	52	3	0	2	8	90	93	102	15.6	1.84	63.2	14.4	0.43	58.2	3	59.1	2.0	2.0	3	4	3	5	185
ND706	59.3	29.3	82	2	1	2	12	85	73	92	14.5	1.72	66.2	13.9	0.40	58.6	4	58.7	2.5	2.5	3	4	4	5	210
N93-0119	61.8	32.5	78	2	0	2	19	79	74	100	13.4	1.55	60.7	11.8	0.36	56.2	2	57.9	2.0	2.0	2	4	5	5	173
N95-0026	59.7	34.4	87	2	4	16	32	48	61	82	13.1	1.70	64.0	12.1	0.35	54.3	2	56.0	2.5	2.5	2	4	3	4	180
N95-0144	59.8	34.2	82	2	2	12	29	57	65	83	12.7	1.67	64.5	11.6	0.42	56.2	2	57.9	2.5	2.5	2	4	5	5	172
N95-0204	59.4	30.9	75	2	1	9	27	63	69	87	14.5	1.71	64.6	13.5	0.42	58.6	3	60.5	2.5	2.5	3	4	3	5	205
N95-0264	61.9	31.0	61	2	2	16	35	47	60	81	12.5	1.67	63.1	11.6	0.39	54.3	2	56.0	3.0	3.0	2	4	3	4	174
N95-0330	61.2	31.0	67	2	1	4	17	78	76	89	13.7	1.76	63.3	12.4	0.45	58.2	4	59.6	2.5	2.5	3	3	5	6	185
MT9609	60.3	33.2	67	2	2	6	29	63	65	84	14.1	1.51	62.9	13.1	0.37	55.3	3	56.5	2.5	2.5	3	4	5	4	206
WA007802	60.3	35.0	78	2	6	21	47	26	54	75	12.4	1.71	63.6	11.1	0.35	53.8	3	55.6	3.0	3.0	2	4	6	4	175
WA007824	61.4	36.0	73	1	9	27	35	29	54	65	12.8	1.68	57.7	12.2	0.36	55.0	3	56.5	3.5	3.5	2	6	5	5	189
BZ987-331	59.5	38.8	91	1	18	42	23	17	47	63	13.2	1.63	60.6	12.7	0.32	57.6	5	59.1	3.5	3.5	2	4	6	6	166
SWP965-001	59.2	32.9	80	2	4	24	32	40	56	97	16.0	1.56	64.0	15.4	0.37	59.3	4	60.5	2.5	2.5	3	3	3	6	204
RL4788	62.3	33.8	85	2	2	5	26	67	72	94	14.5	1.59	60.7	13.7	0.31	57.6	3	59.1	3.0	3.0	3	4	3	6	167
BW693	60.1	32.4	78	2	3	12	35	50	66	98	14.9	1.69	61.4	14.3	0.33	58.2	2	59.1	2.0	2.0	3	3	3	6	185

USDA/ARS Wheat Quality Laboratory, Fargo, ND

1998 Uniform Regional Spring Wheat Nursery

Sidney, MT, Rep #2

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Flour		Mix		Bake Abs (%)	Mix Pat	Time (min)	Mix	Rating Scores				Loaf Vol (cc)
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (14%mb)	Ash (mb)	Ext (%)	Pro (14%mb)	Ash (mb)	Abs (%)	C	C					G	C	T		
MARQUIS	58.0	26.4	40	5	1	3	24	72	69	89	15.2	1.75	60.3	14.2	0.39	56.5	3	56.5	2.5	3	3	5	4	183			
CHRIS	58.2	25.3	34	7	2	7	23	68	76	97	16.1	1.72	63.0	15.4	0.34	55.5	2	54.4	3.0	3	3	3	4	193			
2375	59.7	34.6	70	5	3	13	39	45	61	95	15.3	1.58	64.5	14.2	0.36	57.9	3	58.5	2.5	3	3	5	4	191			
VERDE	58.0	28.8	60	4	1	7	19	73	70	103	15.0	1.67	64.5	14.1	0.36	57.3	2	58.5	2.5	2	4	3	4	200			
KEENE	60.4	27.2	35	6	0	2	7	91	79	101	15.2	1.59	59.8	14.1	0.34	58.2	3	58.7	2.8	3	5	3	5	202			
SD8119	59.1	30.1	67	3	1	7	30	62	64	95	15.0	1.65	62.9	14.4	0.36	58.2	4	59.2	2.5	3	4	5	4	191			
SD3310	61.4	33.0	75	3	12	24	33	31	54	84	15.3	1.60	59.2	15.3	0.30	59.6	4	59.6	2.5	3	1	3	4	201			
SD3345	61.4	31.1	72	2	0	2	18	80	76	98	15.4	1.55	63.4	14.5	0.33	59.6	4	58.5	2.5	2	4	5	4	188			
SD3348	59.1	30.3	63	5	2	13	32	53	64	86	14.8	1.50	63.5	14.5	0.27	59.6	5	58.5	3.0	3	4	3	4	188			
SD3356	59.9	27.5	50	4	0	2	10	88	80	100	16.1	1.77	60.6	15.2	0.33	60.5	3	60.4	2.5	3	3	3	5	197			
MN93413	54.7	27.2	15	13	1	3	19	77	72	76	14.7	1.66	61.2	13.6	0.40	57.6	3	56.3	3.0	2	3	3	5	183			
MN94055	58.8	29.9	40	5	3	13	26	58	64	77	15.2	1.71	56.7	14.3	0.35	54.6	2	54.7	2.5	3	4	5	4	197			
MN97762	59.8	28.3	54	4	0	1	15	84	75	85	14.1	1.56	55.1	13.2	0.37	57.3	4	57.3	3.0	3	4	5	5	180			
MN97847	60.1	30.1	46	6	3	20	38	39	60	80	15.8	1.57	60.8	15.3	0.31	55.8	2	55.1	2.5	3	1	5	4	182			
MN97237	59.9	25.5	33	8	1	2	4	93	81	88	14.1	1.65	59.8	13.2	0.35	55.5	3	55.7	3.0	2	3	3	5	181			
ND691	55.9	24.6	13	10	1	3	20	76	75	86	14.5	1.68	61.7	14.9	0.37	59.0	5	58.5	4.0	2	1	3	5	180			
ND694	60.5	29.2	58	5	1	4	22	73	72	90	16.2	1.54	60.6	15.8	0.33	57.6	4	58.5	2.5	3	4	3	6	210			
ND695	59.9	29.7	70	4	0	7	26	67	67	86	15.2	1.59	57.5	14.7	0.30	57.6	3	56.3	2.5	3	3	4	6	213			
ND705	61.7	27.5	48	6	1	2	13	84	80	106	16.7	1.76	61.7	16.1	0.36	58.6	3	57.9	2.5	3	5	3	6	197			
ND706	56.8	28.3	62	5	1	3	16	80	71	94	15.9	1.76	59.9	15.8	0.35	58.2	5	57.9	3.0	3	4	6	5	207			
N93-0119	59.9	30.6	71	2	0	3	13	84	74	107	15.3	1.62	58.4	13.8	0.34	59.3	3	57.9	2.5	2	4	5	5	204			
N95-0026	59.1	32.7	72	3	2	10	33	55	62	99	15.2	1.59	61.9	14.1	0.34	57.9	4	56.3	3.0	3	4	3	5	205			
N95-0144	57.8	31.2	57	6	1	7	22	70	66	94	15.0	1.58	59.7	14.6	0.37	58.2	4	57.9	3.0	2	3	3	5	196			
N95-0204	57.0	28.5	44	5	1	2	15	82	72	90	16.4	1.67	60.3	15.6	0.39	58.2	4	57.0	2.5	3	3	5	5	198			
N95-0264	59.7	29.2	54	6	1	3	28	68	67	86	14.6	1.84	59.9	13.8	0.34	55.3	3	54.4	2.8	2	4	5	6	189			
N95-0330	58.7	29.2	35	8	1	4	18	77	74	90	15.8	1.70	63.0	15.4	0.40	59.0	4	58.5	2.5	3	3	3	5	202			
MT9609	59.4	32.2	64	3	2	2	26	70	66	91	14.9	1.52	59.1	13.8	0.35	56.5	3	55.2	2.8	2	5	5	6	198			
WA007802	57.8	32.1	57	4	2	16	40	42	59	79	14.5	1.72	59.2	13.8	0.33	58.6	4	57.0	3.0	3	3	3	5	196			
WA007824	59.4	35.5	65	2	8	20	38	34	54	65	14.2	1.67	58.4	13.7	0.35	55.8	3	54.4	3.5	2	5	3	5	198			
BZ987-331	58.1	37.3	80	3	17	30	30	23	50	70	14.9	1.61	62.1	14.5	0.32	60.5	5	56.3	3.3	2	3	3	6	185			
SWP965-001	58.6	31.4	73	3	1	5	18	76	70	99	16.6	1.71	62.3	15.4	0.37	59.6	4	56.3	2.5	2	4	6	5	192			
RL4788	58.6	33.7	82	1	4	10	30	56	62	98	15.4	1.63	62.4	14.5	0.30	59.3	3	56.4	3.0	2	4	5	5	186			
BW693	59.0	31.1	72	2	2	13	32	53	68	96	15.9	1.79	61.0	14.9	0.35	60.3	3	56.4	2.3	3	3	5	6	207			

USDA/ARS Wheat Quality Laboratory, Fargo, ND

1998 Uniform Regional Spring Wheat Nursery

Williston, ND

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores				Loaf Vol (cc)	
			LG (%)	SM (%)	SKCS				HI INDEX	NIR Hard	Pro (14% mb)	Ash (14%mb)	Ext (%)	Pro (14%mb)	Ash (14%mb)	Abs (%)			Pat	D	C	G		T
					A	B	C	D																
MARQUIS	55.0	23.6	12	21	5	13	31	51	58	86	16.0	1.75	46.5	15.4	0.39	58.2	3	58.2	3.0	3	3	5	5	183
CHRIS	53.0	21.0	15	20	7	12	29	52	60	98	17.3	1.71	54.0	16.7	0.36	60.5	3	59.1	2.5	2	4	3	6	211
2375	54.1	25.0	9	22	3	9	21	67	64	94	16.7	1.74	53.1	15.8	0.38	60.5	3	58.2	3.0	3	4	5	6	195
VERDE	51.3	21.6	18	20	2	4	18	76	67	93	15.7	1.75	56.9	15.0	0.38	58.2	3	56.3	3.8	3	3	6	5	184
KEENE	56.2	22.0	4	27	3	6	16	75	70	87	15.8	1.74	49.8	15.0	0.38	58.6	3	56.6	3.0	3	3	5	6	189
SD8119	53.4	23.0	14	17	3	4	14	79	69	94	16.0	1.74	52.8	15.2	0.41	60.0	3	58.2	3.0	3	3	6	5	187
SD3310	55.5	23.5	16	17	14	28	35	23	48	76	16.4	1.72	52.4	16.1	0.35	59.0	3	57.1	3.5	3	1	5	5	192
SD3345	56.4	22.7	12	17	4	3	13	80	70	101	16.2	1.68	54.0	15.4	0.40	57.9	3	56.0	3.5	2	4	5	6	190
SD3348	52.5	22.7	9	25	5	8	30	57	61	74	15.6	1.53	48.6	15.0	0.34	58.6	4	56.3	4.0	2	3	6	4	182
SD3356	53.3	20.6	3	29	3	7	12	78	71	94	15.7	1.66	53.1	15.0	0.41	59.0	4	56.3	3.5	2	5	2	5	200
MN93413	48.9	20.7	2	42	6	8	17	69	64	89	16.1	1.87	53.4	15.4	0.49	59.3	5	56.3	3.5	3	3	5	5	189
MN94055	54.2	23.4	13	22	9	16	33	42	54	72	15.3	1.65	52.4	14.6	0.38	55.3	2	54.4	3.5	2	4	3	4	180
MN97762	52.1	21.1	10	28	4	5	13	78	69	102	16.2	1.63	55.2	15.1	0.42	57.6	3	55.6	4.0	3	4	3	4	186
MN97847	56.5	22.4	4	24	6	22	33	39	55	86	16.3	1.59	53.6	16.0	0.36	57.6	2	56.3	3.0	2	1	3	4	170
MN97237	54.3	21.4	7	28	3	4	14	79	72	95	15.4	1.79	50.0	14.6	0.42	58.2	4	58.2	3.3	3	3	3	5	172
ND691	51.6	21.3	3	40	7	9	20	64	63	89	16.4	1.72	51.9	15.8	0.44	59.3	5	59.1	5.0	6	3	3	5	194
ND694	54.7	21.9	9	21	4	4	16	76	68	92	16.5	1.63	55.9	16.2	0.41	58.2	3	58.2	3.0	2	3	3	6	185
ND695	53.6	22.3	13	25	3	10	21	66	64	85	16.2	1.62	50.7	15.7	0.36	57.6	3	57.5	3.0	3	1	5	6	195
ND705	58.9	23.4	13	15	2	7	16	75	67	109	17.1	1.59	56.9	16.4	0.38	58.2	3	58.3	3.8	3	5	3	6	205
ND706	50.5	21.5	23	17	2	4	12	82	72	90	16.2	1.64	52.9	15.6	0.41	57.6	5	57.6	4.0	3	4	5	6	200
N93-0119	53.0	21.8	11	23	1	1	7	91	77	106	16.2	1.67	52.6	14.7	0.42	55.5	3	55.5	3.5	3	3	3	6	193
N95-0026	52.6	22.3	17	17	3	9	19	69	65	90	15.8	1.65	55.9	14.9	0.37	56.5	4	56.5	4.0	3	3	4	6	215
N95-0144	50.7	24.9	13	21	5	5	20	70	64	93	15.8	1.78	54.3	15.5	0.43	59.3	4	59.3	4.0	3	3	5	6	202
N95-0204	51.1	21.6	3	27	2	6	19	73	67	94	16.2	1.89	52.1	15.8	0.46	58.2	5	58.2	3.5	3	3	3	6	200
N95-0264	51.6	21.4	5	30	5	7	26	62	62	76	15.8	1.88	53.1	15.3	0.42	58.2	3	58.2	3.0	3	1	5	6	184
N95-0330	52.6	23.4	11	24	7	10	29	54	59	100	16.6	1.81	58.8	16.2	0.46	60.3	5	60.3	3.0	3	3	6	6	207
MT9609	53.8	24.2	11	12	4	8	25	63	62	89	16.4	1.66	55.4	15.9	0.39	56.2	4	56.2	4.0	2	3	3	6	217
WA007802	50.3	24.1	11	23	8	16	28	48	56	71	16.7	1.73	53.6	16.5	0.33	58.2	5	56.4	4.0	6	3	3	5	215
WA007824	53.4	24.4	9	21	12	19	31	38	53	65	15.7	1.63	47.4	15.0	0.32	57.3	5	57.3	4.0	3	6	6	5	198
BZ987-331	53.8	26.5	27	8	9	26	37	28	51	58	14.9	1.58	46.9	14.6	0.31	57.6	5	57.6	5.0	2	3	6	5	167
SWP965-001	54.2	26.9	42	9	4	6	25	65	64	86	17.0	1.64	54.7	15.7	0.37	57.3	4	57.3	3.0	3	3	5	4	192
RL4788	56.6	25.9	32	10	2	6	29	63	63	95	16.8	1.59	56.8	15.6	0.31	56.2	4	56.2	3.8	3	3	5	5	194
BW693	53.8	26.0	39	11	6	20	32	42	56	91	16.9	1.63	54.5	16.2	0.34	58.2	3	58.2	2.5	3	5	3	5	204

USDA/ARS Wheat Quality Laboratory, Fargo, ND

1998 Uniform Regional Spring Wheat Nursery

Bozeman, MT

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores			Loaf Vol (cc)		
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (14% mb)	Ash (14% mb)	Ext (%)	Pro (14%mb)	Ash (%)	Pat			D	C	C		G	T
MARQUIS	61.6	33.7	78	2	0	5	33	62	63	101	15.2	1.57	57.5	13.1	0.31	55.5	2	58.2	2.5	3	5	6	5	187
CHRIS	60.4	32.6	83	1	1	6	28	65	63	106	15.3	1.59	57.3	13.7	0.34	58.2	2	59.7	2.0	3	5	5	5	192
2375	62.2	42.1	90	0	1	5	38	56	61	105	14.1	1.60	57.4	12.9	0.33	56.9	3	58.3	2.5	3	3	6	6	185
VERDE	60.8	35.8	87	1	0	3	24	73	65	106	13.7	1.51	62.7	12.3	0.33	57.3	2	57.3	2.5	2	3	3	5	184
KEENE	62.7	33.3	73	1	1	2	10	87	72	97	14.9	1.46	56.7	13.5	0.33	58.6	3	58.6	2.5	3	6	3	5	197
SD8119	60.6	34.3	82	1	0	1	14	85	70	106	14.5	1.57	62.3	13.2	0.37	57.3	2	57.3	2.5	2	3	6	4	182
SD3310	62.7	34.9	87	1	2	13	46	39	57	75	15.1	1.50	59.5	14.5	0.33	57.3	2	58.2	2.3	2	3	3	5	191
SD3345	63.3	35.1	88	1	0	0	11	89	72	101	14.8	1.54	55.2	13.1	0.34	57.9	2	58.2	2.3	2	4	3	5	181
SD3348	61.0	34.1	78	3	2	1	16	81	69	84	13.9	1.41	59.6	12.7	0.31	58.2	3	58.2	3.0	2	3	5	5	193
SD3356	61.5	29.5	62	4	0	0	4	96	79	100	14.5	1.67	58.7	12.8	0.35	58.2	3	58.7	2.5	3	3	3	5	201
MN93413	61.0	36.7	77	2	1	1	11	87	71	100	12.1	1.40	55.2	10.4	0.40	55.8	3	56.8	3.0	2	3	5	5	163
MN94055	62.2	37.1	82	1	1	8	29	62	62	89	13.4	1.58	52.4	12.1	0.36	54.3	2	55.2	2.5	2	3	5	4	167
MN97762	62.0	34.1	84	2	0	1	5	94	77	100	12.8	1.49	55.4	10.9	0.38	56.2	2	57.3	3.0	2	5	6	4	172
MN97847	63.0	35.8	83	2	4	19	43	34	55	94	14.6	1.51	55.4	14.0	0.34	57.9	2	58.7	2.5	3	4	3	5	186
MN97237	63.0	34.3	80	1	0	1	7	92	77	103	12.6	1.45	54.7	11.2	0.32	53.2	1	54.4	2.5	2	3	5	4	160
ND691	61.0	32.4	79	2	0	2	13	85	73	94	13.4	1.42	62.7	12.1	0.39	56.9	3	60.1	3.5	6	3	6	5	179
ND694	62.0	33.4	82	1	0	2	6	92	74	92	15.1	1.53	60.4	13.8	0.36	58.6	3	60.4	3.0	3	5	3	6	203
ND695	61.7	35.5	87	1	0	4	26	70	65	75	14.4	1.50	54.7	12.9	0.31	57.3	3	58.2	2.8	3	3	5	6	192
ND705	63.1	33.7	87	1	1	4	20	75	67	96	16.2	1.53	63.3	15.3	0.34	61.1	4	60.3	2.5	3	6	5	6	216
ND706	61.0	33.7	92	2	0	0	8	92	77	96	14.2	1.47	60.3	13.1	0.36	60.5	3	60.4	2.5	2	3	5	6	195
N93-0119	62.2	30.9	71	4	0	0	2	98	84	109	13.8	1.46	54.5	13.8	0.39	59.3	3	59.1	2.5	2	3	3	6	198
N95-0026	61.4	33.3	81	2	0	1	7	92	77	94	14.5	1.45	62.7	11.2	0.36	57.6	3	58.5	2.5	2	4	3	5	185
N95-0144	61.2	36.8	86	2	0	3	14	83	71	89	13.3	1.53	55.6	12.3	0.39	58.6	3	59.1	2.5	3	3	5	6	201
N95-0204	59.5	31.2	61	4	0	1	10	89	76	91	14.8	1.64	61.3	13.5	0.41	60.0	4	61.3	2.5	2	4	3	5	198
N95-0264	62.4	34.8	68	1	0	1	22	77	68	76	12.9	1.66	56.5	11.5	0.36	55.5	2	56.5	2.8	2	4	5	5	185
N95-0330	58.2	28.5	40	2	0	1	4	95	79	101	14.6	1.70	57.4	13.6	0.42	60.0	4	60.9	2.5	3	3	5	6	215
MT9609	62.0	40.3	91	1	0	2	30	68	65	95	13.8	1.51	54.2	12.6	0.33	58.6	3	59.1	2.5	3	3	3	5	200
WA007802	60.0	36.2	78	2	0	6	24	70	65	75	13.7	1.41	58.7	12.2	0.31	59.0	3	59.0	3.0	2	3	5	6	212
WA007824	61.6	38.3	79	2	2	6	29	63	64	60	13.2	1.50	50.5	12.2	0.32	56.2	4	56.2	4.5	2	5	3	6	197
BZ987-331	60.9	43.6	89	1	3	25	49	23	52	58	13.5	1.46	50.0	12.2	0.30	59.0	5	59.0	4.0	2	3	5	5	175
SWP965-001	61.9	40.3	94	1	0	8	30	62	62	87	15.5	1.60	59.6	14.1	0.30	59.3	3	59.0	2.5	3	3	3	5	204
RL4788	63.0	38.9	92	1	2	11	39	48	59	88	14.9	1.46	58.0	13.7	0.29	58.2	3	58.5	2.5	3	3	5	6	181
BW693	61.6	39.2	93	1	3	13	46	38	56	98	15.6	1.62	58.0	14.2	0.32	59.6	3	59.7	2.3	3	5	3	5	192

1998 Uniform Regional Spring Wheat Nursery

Havre, MT

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores			Loaf Vol (cc)		
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (14% mb)	Ash (14% mb)	Ext (%)	Pro (14%mb)	Ash (14%mb)	Abs (%)			Pat	D	C		C	T
MARQUIS	54.8	22.4	14	17	2	4	13	81	76	90	16.4	2.02	58.8	15.1	0.42	56.5	3	56.4	2.5	3	3	3	4	182
CHRIS	54.3	21.2	8	23	2	3	18	77	73	102	17.2	1.92	62.3	15.8	0.37	59.0	3	59.2	2.5	3	3	3	4	190
2375	54.6	23.2	4	24	1	3	10	86	78	99	16.7	1.98	61.5	16.0	0.41	61.1	5	62.4	3.0	3	3	3	5	207
VERDE	53.1	22.3	18	17	1	5	15	79	72	104	15.9	2.00	63.6	15.0	0.39	60.0	5	60.7	3.0	3	3	3	5	190
KEENE	57.3	23.2	6	23	1	4	12	83	74	92	16.2	1.82	60.6	14.9	0.46	60.0	4	59.9	2.5	3	3	3	5	192
SD8119	54.7	23.5	18	14	2	4	10	84	73	97	16.0	1.92	61.8	15.2	0.45	60.5	4	60.1	3.0	3	4	3	6	201
SD3310	57.2	24.0	23	12	3	13	24	60	65	71	16.2	1.86	60.4	15.8	0.38	58.2	3	59.2	2.5	3	3	3	5	194
SD3345	56.8	23.4	9	15	1	4	10	85	76	93	16.4	1.96	61.3	15.5	0.45	58.6	4	58.8	3.0	3	4	5	5	205
SD3348	54.5	23.3	13	23	1	5	20	74	69	82	15.8	1.78	59.9	14.8	0.35	58.6	5	59.2	4.0	3	3	5	4	182
SD3356	55.0	21.0	3	26	2	2	8	88	76	94	16.3	1.88	59.6	15.4	0.43	60.5	5	60.1	3.0	3	3	5	5	202
MN93413	49.4	21.6	63	37	3	2	12	83	73	98	16.6	2.07	57.3	14.3	0.47	59.3	4	60.1	2.5	2	3	5	5	177
MN94055	53.4	23.1	7	22	5	10	24	61	64	80	16.5	2.05	56.6	15.5	0.42	57.6	3	58.4	3.0	3	4	3	5	187
MN97762	52.7	21.1	7	28	2	2	10	86	74	93	15.9	1.96	59.2	14.8	0.47	58.6	4	58.8	3.5	3	3	3	5	183
MN977847	56.2	21.9	3	29	3	8	25	64	65	86	16.8	1.98	59.8	16.4	0.38	57.6	3	58.4	3.0	3	3	6	5	195
MN97237	56.2	21.4	6	21	1	3	6	90	79	89	15.7	1.96	61.0	15.7	0.51	58.6	5	59.7	3.0	3	3	6	5	195
ND691	52.0	20.6	56	45	3	4	10	83	74	96	17.4	1.89	61.7	16.7	0.47	60.5	7	60.1	4.0	3	4	6	5	204
ND694	55.3	23.1	8	20	2	4	10	84	74	89	16.6	2.05	60.2	15.8	0.47	58.6	5	59.2	2.5	3	5	4	5	190
ND695	55.4	23.7	18	17	3	6	16	75	70	87	16.1	1.84	60.6	15.2	0.39	57.9	4	58.8	2.5	3	4	3	6	201
ND705	59.0	23.8	11	18	3	3	14	80	75	107	16.8	1.89	61.0	15.7	0.45	60.5	5	60.5	3.0	3	3	5	6	205
ND706	50.6	21.9	14	17	1	5	13	81	73	87	16.0	1.94	57.3	15.4	0.48	59.3	5	59.3	3.5	3	3	3	6	198
N93-0119	56.0	24.2	16	17	2	2	16	80	71	103	16.4	1.86	55.5	14.6	0.46	60.0	4	60.0	2.5	2	3	5	5	193
N95-0026	54.0	23.2	15	15	2	6	17	75	67	94	15.9	1.87	57.3	14.7	0.47	59.0	5	59.1	4.0	3	3	5	6	208
N95-0144	51.9	24.2	7	18	3	7	27	63	67	89	16.2	2.09	61.3	15.2	0.48	60.8	5	60.8	3.5	3	3	5	6	188
N95-0204	50.3	20.1	2	39	2	4	10	84	74	91	17.2	2.11	47.0	16.0	0.51	59.6	5	59.6	3.5	3	3	5	6	195
N95-0264	54.7	24.2	13	18	2	9	28	61	64	78	14.8	2.02	60.0	14.3	0.45	57.9	4	58.5	3.0	3	1	3	6	192
N95-0330	53.0	22.6	3	26	3	4	11	82	74	99	17.0	2.02	61.5	16.1	0.50	62.5	7	62.5	3.0	3	4	6	6	212
MT9609	54.5	24.3	8	17	3	3	18	76	70	90	16.5	1.86	58.7	15.7	0.47	59.0	4	59.0	3.0	3	3	3	5	232
WA007802	51.4	23.7	11	22	4	9	30	57	61	91	16.6	1.93	57.8	15.8	0.39	61.4	5	60.5	3.5	3	4	3	5	212
WA007824	54.8	24.8	17	17	8	8	28	56	60	65	16.2	1.97	56.9	15.1	0.41	57.9	5	58.4	5.0	3	3	2	4	194
BZ987-331	53.2	26.3	22	14	5	16	35	44	59	93	17.0	2.07	59.2	15.4	0.41	62.5	8	60.8	5.5	2	3	3	5	170
SWP965-001	55.1	25.8	32	10	2	4	12	82	71	96	16.9	1.91	60.6	15.7	0.44	60.8	5	59.0	3.0	3	3	5	5	197
RL4788	57.8	27.8	43	9	3	4	25	68	65	91	16.3	1.90	61.9	15.1	0.36	60.8	5	59.0	3.0	3	4	5	5	188
BW693	53.6	24.5	17	16	4	8	27	61	63	99	17.3	2.01	60.8	16.5	0.41	60.8	4	59.0	2.5	3	3	3	6	206

1998 Uniform Regional Spring Wheat Nursery

Pullman, WA

VARIETY	TW (lb/bu)	1000 KWT (gm)	Sizing		SKCS Distribution				SKCS		Wheat		Flour		Flour		Mix		Bake Abs (%)	Mix Time (min)	Rating Scores	Loaf Vol (cc)		
			LG (%)	SM (%)	A	B	C	D	HI INDEX	NIR Hard	Pro (14% mb)	Ash (14% mb)	Ext (%)	Pro (14%mb)	Ash (%)	Abs (%)	Pat	D					C	C
MARQUIS	61.5	30.3	79	2	0	3	19	78	70	87	12.6	1.65	52.6	12.0	0.39	54.6	2	56.6	2.5	2	3	6	4	152
CHRIS	61.8	28.8	59	7	1	3	11	85	71	81	12.1	1.63	47.2	11.3	0.37	52.6	2	56.6	2.5	2	3	6	4	155
2375	63.5	36.1	81	2	1	2	16	81	68	85	11.6	1.45	58.8	10.3	0.35	52.9	2	56.4	2.8	2	3	6	4	151
VERDE	61.8	33.3	83	3	0	1	15	84	69	89	11.1	1.70	59.6	10.0	0.35	54.3	3	58.3	3.3	2	3	5	5	158
KEENE	64.1	32.6	73	3	0	1	10	89	72	104	11.9	1.47	53.6	10.9	0.33	55.3	2	59.2	2.5	2	3	5	4	158
SD8119	60.9	36.8	83	3	2	4	11	83	68	85	10.7	1.52	52.4	9.3	0.39	50.2	2	56.4	3.3	2	3	6	4	157
SD3310	62.8	28.8	66	4	1	4	28	67	65	80	12.0	1.64	51.4	11.9	0.38	55.8	3	60.1	2.5	2	4	3	4	167
SD3345	64.7	30.9	79	1	0	0	4	96	77	98	11.6	1.48	59.9	9.8	0.34	53.8	2	58.3	3.0	2	4	3	4	148
SD3348	56.6	24.0	26	18	1	3	8	88	75	80	12.8	1.70	53.1	11.7	0.33	54.6	3	58.7	3.5	2	4	5	5	168
SD3356	60.6	25.3	33	9	1	1	4	94	79	94	11.7	1.63	58.9	10.2	0.36	55.8	4	60.1	3.0	2	4	3	5	154
MN93413	61.1	32.8	67	3	1	5	14	80	70	87	10.5	1.49	56.0	9.1	0.39	50.8	2	54.9	3.0	2	4	6	4	142
MN94055	62.8	32.3	75	3	0	2	17	81	69	72	11.0	1.53	54.5	9.9	0.37	50.8	1	56.6	2.5	2	4	3	4	155
MN97762	data missing																							
MN97847	data missing																							
MN97237	data missing																							
ND691	61.9	28.8	62	3	0	2	10	88	75	91	10.2	1.42	55.9	8.6	0.37	49.9	2	56.4	4.0	2	4	3	4	134
ND694	64.1	31.3	79	3	1	2	8	89	75	94	10.8	1.47	51.2	9.5	0.37	52.2	2	56.4	3.0	2	3	6	4	147
ND695	62.7	31.8	77	4	0	2	14	84	70	75	11.6	1.48	56.5	11.1	0.36	51.6	2	56.4	2.5	2	3	5	4	152
ND705	64.3	30.5	80	2	0	0	5	95	76	104	13.1	1.55	58.7	11.8	0.44	53.2	2	57.2	3.0	2	3	5	6	160
ND706	60.3	30.1	82	2	1	1	10	88	74	95	10.8	1.54	55.0	9.6	0.39	49.9	2	55.7	4.0	2	3	6	4	144
N93-0119	62.4	29.9	82	2	0	2	6	92	79	101	10.6	1.49	50.5	8.9	0.39	50.8	2	56.4	3.5	2	4	3	4	148
N95-0026	60.6	30.9	72	5	1	2	11	86	74	85	11.3	1.51	62.7	9.8	0.38	50.8	2	58.6	3.5	2	1	6	4	156
N95-0144	61.0	35.1	78	2	1	3	14	82	68	90	10.7	1.52	60.1	9.6	0.43	53.5	2	58.4	3.0	2	3	5	5	150
N95-0204	62.7	32.1	79	2	1	1	9	89	73	79	11.9	1.62	58.5	10.9	0.36	54.6	3	58.6	3.0	2	3	5	5	175
N95-0264	62.5	32.3	69	3	0	2	10	88	72	64	10.8	1.48	60.2	9.8	0.40	51.9	2	56.9	3.0	1	4	6	4	156
N95-0330	62.3	31.9	77	1	0	3	7	90	73	92	11.2	1.70	60.1	9.9	0.41	54.3	3	58.4	3.0	2	3	6	4	155
MT9609	63.1	34.7	87	0	0	1	6	93	74	86	10.9	1.43	59.8	9.8	0.37	51.6	2	55.7	2.5	2	3	6	4	147
WA007802	60.9	34.4	74	3	0	3	23	74	67	80	11.0	1.50	59.7	9.5	0.34	52.9	2	56.9	3.0	2	3	3	4	158
WA007824	62.6	36.9	81	2	2	6	24	68	63	86	11.0	1.52	54.8	9.8	0.35	50.5	2	56.6	5.0	2	3	6	5	157
BZ987-331	61.1	35.0	79	2	2	10	32	56	60	56	9.7	1.65	57.5	8.7	0.37	50.2	2	56.1	4.5	1	4	6	4	147
SWP965-001	62.3	35.0	87	1	0	2	18	80	68	90	11.5	1.59	62.7	10.3	0.37	52.2	2	56.6	3.3	1	3	6	4	158
RL4788	62.0	33.4	84	3	0	2	15	83	71	86	11.1	1.67	60.8	9.7	0.34	52.2	2	57.3	4.0	1	3	3	4	153
BW693	62.0	32.7	83	1	1	3	19	77	69	88	12.3	1.52	59.6	10.8	0.34	52.9	2	59.8	3.0	2	3	5	4	156

Ent No.	Name	Pedigree/CI No	Source	Year
1.	MARQUIS	3651	CAN	1929
2.	CHRIS	13751	MN	1969
3.	2375	Olaf/Era/Suqamuxi68/3/Cis/ND487//Lark	NDRF	1998
4.	VERDE	MN7663/SBY35A	MN	1998
5.	KEENE	Stoa's'3/IAS20*4//H567.71//Amidon	ND	1998
6.	SD8119	SD8072/SD3105	SD	1997
7.	SD3310	SD8072/SD3067	SD	1997
8.	SD3345	SD3116/BT86/SD8061	SD	1998
9.	SD3348	SD3116/OXEN	SD	1998
10.	SD3356	SD3080/OXEN	SD	1998
11.	MN93413	NING8331/MN87029//MN89068	MN	1996
12.	MN94055	BR23/MN90071	MN	1997
13.	MN94200	MN89028/GRANDIN	MN	1997
14.	MN95002	2375/SBF0670	MN	1998
15.	MN95286	MN90092/MN86165	MN	1998
16.	ND691	STOA*2/CARIFEN//AMIDON	ND	1997
17.	ND694	KEENE/ND674	ND	1997
18.	ND695	IAS20*4/H567.71//STOA/3/ND674	ND	1997
19.	ND705	KEENE/ND647	ND	1998
20.	ND706	GRANDIN/3/IAS20*4/H567.71//AMIDON/4/ND674	ND	1998
21.	N93-0119	N88-0436/DALEN	Agripro	1997
22.	N95-0026	TELEMARK/GRANDIN	Agripro	1998
23.	N95-0144	N90-0369/N87-002	Agripro	1998
24.	N95-0204	N90-0470/TELEMARK	Agripro	1998
25.	N95-0264	B89-0597/BT86	Agripro	1998
26.	N95-0330	N90-0186/AMIDON	Agripro	1998
27.	MT9609	FORTUNA/AMIDON	MT	1998
28.	WA007802	HF820049/WA007301//TEC/K8405055	WA	1997
29.	WA007824	KODIAK/SPILLMAN//WPB00926	WA	1998
30.	BZ987-331		WPB	1997
31.	SWP965-001	3*GRANDIN/FS-2(IMI RESIST FIDEL)	WPB	1998
32.	RL4788	SHARP/AC MINTO	MANT	1998
33.	BW693		SASK	1997

Section III

Uniform Regional HRS Wheat Nursery

– 1999 Crop

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HRS Wheat Uniform Regional Nursery - 1999 Crop

Carrington, ND

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS					Pro 14% mb	Ash 14% mb	NIR Hard	Flour Ext (%)	Pro 14% mb	Ash 14% mb	Mix Abs (%)	MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics				Loaf Vol (cc)
					A	B	C	D	HI											DC	CC	CG	CT	
MARQUIS	59.8	30.2	55	2	1	1	11	87	95	13.4	1.76	73	67.8	12.7	0.39	55.5	2	55.5	3.3	3	3	5	5	190
CHRIS	59.6	31.0	78	1	0	1	11	88	92	13.6	1.75	76	69.3	12.4	0.38	56.5	2	56.5	3.5	3	5	3	5	198
2375	61.4	30.5	68	1	0	1	5	94	102	15.1	1.72	82	66.0	14.3	0.37	59.3	3	59.3	3.0	3	5	3	5	192
VERDE	61.7	31.7	71	2	1	0	6	93	99	14.9	1.74	77	66.8	13.8	0.39	58.2	3	60.2	3.5	2	3	6	5	188
KEENE	60.1	30.1	67	2	1	5	18	76	89	13.9	1.61	63	67.6	13.4	0.35	56.2	3	56.2	4.0	3	3	6	5	215
SD8119	59.8	26.5	48	5	1	1	5	93	98	14.0	1.75	77	67.3	13.0	0.37	58.2	3	58.2	3.5	3	3	3	6	192
SD3310	61.8	30.2	58	3	1	3	12	84	92	14.2	1.79	70	67.5	13.4	0.38	55.6	1	55.6	3.3	2	4	6	4	178
SD3345	61.0	27.2	48	5	0	2	3	95	95	12.5	1.82	72	67.7	11.2	0.42	53.8	2	57.9	3.3	2	3	5	4	178
SD3348	62.1	32.4	76	1	0	2	10	88	92	16.7	1.84	91	66.1	15.9	0.38	59.3	3	59.3	3.0	3	6	6	6	222
SD3407	62.1	34.3	81	1	0	3	9	88	97	12.9	1.65	77	65.2	11.7	0.37	56.5	3	59.4	3.5	3	3	6	6	175
SD3414	61.7	27.7	32	6	0	3	6	91	102	13.6	1.62	88	67.0	12.6	0.36	55.3	3	55.3	4.5	2	3	6	6	187
MN95002	58.7	29.5	57	5	0	7	17	76	88	13.4	1.89	66	63.9	12.5	0.42	54.6	2	54.6	4.3	2	3	6	4	187
MN95229	62.0	34.0	78	1	2	5	14	79	88	13.9	1.71	73	63.9	12.8	0.38	56.2	2	59.3	3.0	3	5	6	6	188
ND709-9	61.2	36.1	87	1	0	6	23	71	80	14.6	1.70	67	65.3	13.7	0.36	59.0	4	59.0	4.3	3	6	5	6	192
ND716	60.3	29.4	64	2	1	1	8	90	93	15.1	1.85	74	63.0	14.1	0.41	59.3	3	59.3	3.3	3	3	3	6	202
ND721	62.7	33.9	84	1	0	1	7	92	94	15.2	1.72	94	67.9	14.3	0.37	60.8	3	60.8	3.0	3	5	4	6	211
ND724	60.6	32.7	78	1	0	0	7	93	93	16.4	1.76	93	66.4	15.3	0.37	60.0	4	60.0	3.0	3	5	4	6	210
ND726	63.5	29.9	72	2	0	1	4	95	98	15.2	1.79	87	64.4	14.0	0.39	58.2	3	58.2	3.0	3	3	5	6	197
N96-0144	58.9	30.5	63	4	0	2	8	90	94	13.0	1.75	75	65.0	11.9	0.41	55.8	3	55.8	5.5	2	3	3	5	188
N96-0060	58.6	27.2	50	4	1	1	8	90	92	12.9	1.76	81	65.4	11.0	0.42	55.5	3	55.5	4.5	3	3	3	5	190
N96-0111	59.8	30.2	74	1	0	2	15	83	89	12.8	1.74	76	67.9	11.7	0.39	55.5	3	55.5	5.0	2	3	4	5	178
N96-0123	60.7	29.9	70	2	0	1	9	90	100	12.9	1.78	91	67.9	12.2	0.41	56.5	3	56.5	4.8	2	4	6	4	175
WA007824	58.9	32.4	51	2	4	12	19	65	79	13.0	1.74	48	62.5	12.3	0.37	52.9	2	52.9	5.0	2	3	6	4	208
WA007839	58.6	31.5	71	3	2	7	17	74	84	13.6	1.72	59	61.9	12.6	0.36	53.5	2	53.5	3.5	3	2	4	5	215
ID0523	55.0	27.0	49	3	0	2	12	86	92	12.3	1.96	72	63.1	11.2	0.37	53.2	2	54.4	5.3	2	3	6	5	180
ID0533	58.6	28.6	52	4	2	8	15	75	79	12.5	1.73	60	61.5	11.2	0.39	52.6	2	54.0	3.5	2	3	6	5	182
98T311	59.4	32.5	74	1	0	3	16	81	92	13.7	1.67	75	64.5	12.3	0.37	52.9	1	56.1	2.5	2	2	3	5	177
98T379	60.8	30.6	63	4	0	1	7	92	94	12.8	1.74	79	63.8	11.5	0.39	56.2	2	58.5	5.3	2	4	6	5	172
FA997-703	61.1	32.2	58	2	1	1	6	92	96	13.8	1.82	85	65.1	12.3	0.41	56.5	2	58.5	2.0	2	3	5	5	174
BW748	58.4	29.1	58	3	0	5	14	81	84	14.6	1.81	71	63.7	14.3	0.40	56.5	3	58.5	3.5	3	3	4	6	220
BW252	59.6	32.9	58	1	1	7	14	78	87	14.5	1.75	78	65.9	14.1	0.39	57.6	2	58.5	3.3	3	5	5	6	223

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

HRS Wheat Uniform Regional Nursery - 1999 Crop

Crookston, MN

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS					Wheat			Flour			Mix Abs (%)	MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics				Loaf Vol (cc)	
					SKCS					Pro 14% mb	Ash	NIR	Flour Ext (%)	Pro 14% mb	Ash					Mix Abs (%)	DC	CC	CG		CT
					A	B	C	D	HI																
MARQUIS	56.4	25.1	37	10	2	3	11	84	87	14.9	1.84	77	64.4	13.9	0.44	56.5	2	58.4	3.8	3	3	3	4	208	
CHRIS	56.5	25.7	46	8	1	2	13	84	85	15.8	1.74	82	63.6	15.5	0.40	58.2	3	58.2	3.0	3	3	5	5	227	
2375	60.5	33.6	64	4	1	6	23	70	77	14.9	1.67	78	65.4	13.4	0.40	57.9	3	59.3	3.0	3	3	6	6	202	
VERDE	57.0	27.3	58	5	1	3	21	75	78	14.1	1.76	82	68.5	12.9	0.38	56.5	2	58.2	4.0	3	3	3	5	201	
KEENE	59.0	30.1	65	4	1	3	12	84	83	15.0	1.74	73	66.8	13.9	0.38	59.0	3	60.4	4.5	3	5	3	6	214	
SD8119	58.6	31.1	75	3	1	3	18	78	82	14.9	1.68	80	66.7	14.0	0.38	57.3	3	60.1	3.5	3	3	4	6	220	
SD3310	60.2	30.5	68	3	4	15	20	61	73	14.7	1.58	55	64.0	13.9	0.35	58.2	3	59.6	3.5	3	3	6	6	208	
SD3345	61.0	31.1	75	3	0	1	13	86	86	15.1	1.63	82	65.0	13.7	0.37	58.6	3	60.4	3.8	3	3	5	6	198	
SD3348	58.7	28.5	59	6	1	5	18	76	73	15.0	1.68	83	65.9	13.8	0.33	56.9	4	58.2	4.5	3	3	5	6	203	
SD3407	60.2	32.7	71	3	0	4	14	82	92	14.3	1.60	83	64.7	12.8	0.35	57.9	4	59.6	4.5	3	3	6	6	190	
SD3414	62.2	29.0	44	5	2	2	12	84	86	14.9	1.59	85	66.0	13.6	0.36	56.2	4	57.1	5.3	3	5	4	5	186	
MN95002	61.5	30.1	64	4	1	9	19	71	75	15.7	1.72	80	64.8	14.7	0.35	57.9	2	59.6	3.3	3	3	4	6	192	
MN95229	61.0	32.5	68	2	3	3	18	76	79	14.9	1.73	85	64.2	14.0	0.38	56.9	3	58.2	4.0	3	5	6	4	198	
ND709-9	60.2	30.9	75	3	1	4	17	78	83	14.7	1.74	63	64.4	13.6	0.37	58.2	5	59.6	4.5	2	3	4	5	200	
ND716	59.6	27.5	53	5	1	1	7	91	88	15.4	1.74	85	64.4	14.5	0.38	59.6	5	60.9	3.8	3	3	3	6	199	
ND721	60.6	29.7	73	4	0	1	6	93	88	16.1	1.81	98	66.8	15.3	0.38	57.9	3	58.8	3.5	3	5	3	6	207	
ND724	57.8	29.3	64	3	0	2	13	85	89	16.6	1.80	90	66.5	16.2	0.36	60.3	5	61.1	3.5	3	3	4	6	223	
ND726	62.4	28.8	68	3	0	2	6	92	85	15.2	1.81	80	63.7	13.7	0.40	58.6	4	60.4	3.5	3	3	6	6	195	
N96-0144	59.4	30.9	63	2	0	2	11	87	87	14.2	1.71	80	65.7	12.7	0.39	57.9	5	59.3	5.5	3	4	3	6	193	
N96-0060	57.8	26.7	56	7	1	2	10	87	85	14.0	1.86	90	65.3	12.7	0.39	59.0	4	60.4	4.5	3	4	5	5	186	
N96-0111	57.1	28.3	61	4	0	3	16	81	84	13.7	1.77	74	65.0	12.7	0.42	56.2	4	56.4	5.0	2	4	6	5	182	
N96-0123	59.0	27.0	67	3	1	2	13	84	86	14.3	1.76	85	67.3	13.2	0.39	57.6	4	57.5	5.0	3	1	3	6	185	
WA007824	56.1	30.2	47	10	6	17	22	55	69	14.1	1.80	65	57.9	13.3	0.38	54.3	3	55.3	5.0	3	5	6	6	200	
WA007839	55.4	27.6	49	9	2	8	25	65	71	15.0	1.87	61	57.5	14.0	0.39	55.5	2	56.4	3.0	3	3	6	6	210	
ID0523	49.0	22.7	18	25	2	3	9	86	79	13.5	1.97	57	54.7	11.9	0.50	56.5	3	58.4	4.5	2	3	6	6	189	
ID0533	57.2	28.6	48	8	2	6	24	68	68	13.7	1.76	60	59.3	12.2	0.40	55.0	2	56.3	4.0	2	5	6	6	193	
98T311	56.3	27.0	57	4	0	1	14	85	78	13.8	1.75	65	66.4	12.5	0.37	52.6	1	55.6	3.0	2	3	4	6	183	
98T379	59.4	28.4	53	5	0	1	12	87	78	13.1	1.74	63	63.6	11.7	0.40	56.5	3	57.1	5.0	2	3	6	6	170	
FA997-703	56.6	28.0	31	10	0	3	10	87	87	15.1	2.03	65	60.1	13.9	0.43	60.5	3	60.4	2.0	2	3	4	6	187	
BW748	55.5	26.1	37	9	0	5	16	79	80	15.4	1.74	67	64.3	15.2	0.41	57.9	5	59.3	5.0	3	3	4	6	229	
BW252	58.5	32.3	73	4	2	10	26	62	69	14.8	1.89	80	55.3	13.7	0.41	59.0	3	60.4	3.0	3	4	3	6	205	

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

HRS Wheat Uniform Regional Nursery - 1999 Crop

Langdon, ND

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS				Pro 14% mb	Ash Hard	Flour Ext (%)	Pro 14% mb	Ash 14% mb	Mix Abs (%)	MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics				Loaf Vol (cc)	
					A	B	C	D										DC	CC	CG	CT		
MARQUIS	59.2	29.3	65	1	0	4	20	76	84	13.6	1.76	82	63.7	12.5	0.41	55.0	2	3.5	2	3	6	6	185
CHRIS	59.8	28.0	66	2	1	5	15	79	84	15.4	1.62	81	64.2	14.4	0.36	56.9	2	2.5	3	3	6	6	182
2375	61.3	35.8	74	1	1	9	29	61	70	13.9	1.56	79	65.4	12.9	0.41	55.3	2	4.0	3	3	6	6	197
VERDE	60.2	31.4	73	2	3	12	25	60	62	12.9	1.70	86	68.9	12.0	0.37	55.8	2	4.0	2	3	6	5	194
KEENE	61.8	33.0	72	2	2	6	22	70	68	15.0	1.70	92	63.3	13.4	0.35	58.2	3	3.0	3	5	5	6	197
SD8119	60.3	35.7	85	1	1	5	28	66	65	14.4	1.62	89	66.5	14.0	0.39	59.0	3	3.5	3	4	3	6	205
SD3310	61.6	35.0	79	1	3	22	32	43	62	14.6	1.62	67	63.6	14.0	0.38	59.0	3	3.5	3	3	3	5	205
SD3345	62.6	33.4	80	1	0	3	22	75	74	14.1	1.56	82	65.3	13.4	0.36	57.9	3	4.0	3	4	3	6	205
SD3348	59.4	32.9	76	1	0	9	33	58	69	14.1	1.54	84	67.8	13.4	0.32	54.6	3	4.5	3	3	4	5	196
SD3407	60.3	35.4	77	1	0	6	20	74	80	12.9	1.52	85	64.4	12.1	0.34	55.8	4	5.0	3	3	6	5	193
SD3414	61.3	29.7	46	4	1	3	15	81	80	13.9	1.51	85	65.0	13.0	0.36	55.0	3	5.5	3	3	4	5	198
MN95002	62.6	33.6	74	2	2	9	19	70	81	13.9	1.57	71	64.5	13.4	0.35	54.3	1	3.0	2	3	3	5	193
MN95229	62.0	35.0	82	1	2	6	21	71	78	13.9	1.64	87	65.0	12.9	0.37	56.5	2	3.0	2	5	4	5	186
ND709-9	62.2	40.3	92	1	3	13	33	51	66	14.1	1.55	76	66.8	13.6	0.34	57.3	3	4.5	3	5	4	4	210
ND716	62.4	33.2	74	1	0	2	19	79	71	14.9	1.66	96	64.1	13.7	0.35	57.3	3	3.5	3	3	6	5	198
ND721	62.9	36.7	90	1	0	1	22	77	70	15.4	1.66	97	64.9	15.1	0.35	58.6	3	3.5	3	3	5	6	205
ND724	60.9	35.8	85	1	1	4	30	65	69	16.2	1.67	91	64.7	15.3	0.33	59.0	4	3.5	3	2	3	6	220
ND726	62.8	32.6	84	1	0	5	13	82	72	14.9	1.74	89	63.9	13.5	0.34	59.0	4	3.5	3	3	6	6	195
N96-0144	60.9	33.6	76	1	1	4	22	73	74	13.3	1.56	102	63.4	11.7	0.37	56.2	4	4.5	2	3	5	6	188
N96-0060	60.4	30.6	71	2	1	1	19	79	80	13.0	1.63	94	67.6	12.0	0.36	58.2	4	3.5	2	3	4	6	185
N96-0111	60.5	33.7	86	1	3	13	27	57	67	12.2	1.55	78	66.8	11.6	0.39	56.2	4	4.5	2	3	6	6	182
N96-0123	61.4	33.8	87	2	0	10	27	63	66	13.6	1.66	90	69.2	12.7	0.36	58.6	3	4.0	3	3	6	6	197
WA007824	57.3	33.3	64	3	13	21	26	40	57	13.3	1.62	59	58.7	12.4	0.39	53.2	2	5.0	2	3	6	5	195
WA007839	58.2	35.4	73	3	3	15	36	46	63	13.8	1.75	62	62.7	13.0	0.39	55.5	2	3.0	2	3	6	5	192
ID0523	55.3	27.4	53	8	2	5	10	83	80	12.0	1.64	78	61.8	10.8	0.47	54.6	2	4.0	2	3	3	5	188
ID0533	59.4	33.1	72	2	2	6	29	63	67	12.6	1.56	80	61.1	11.6	0.41	55.5	3	3.5	2	5	6	5	200
98T311	58.6	31.9	72	2	2	5	23	70	70	13.6	1.51	80	62.0	12.3	0.35	51.6	1	2.5	2	3	5	5	178
98T379	60.0	32.9	68	2	1	3	19	77	74	12.9	1.54	85	64.5	11.7	0.36	57.3	3	4.5	3	3	3	6	189
FA997-703	62.1	37.6	89	0	1	5	25	69	75	14.7	1.63	92	64.0	13.2	0.33	60.5	2	2.0	2	3	5	6	174
BW748	57.4	27.5	48	5	1	5	11	83	88	14.5	1.75	73	63.1	14.0	0.40	58.2	4	4.0	3	3	3	6	211
BW252	59.7	34.9	79	2	2	10	25	63	78	13.9	1.69	82	65.6	13.1	0.39	59.0	4	3.0	3	3	5	6	201

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

HRS Wheat Uniform Regional Nursery - 1999 Crop

Prosper, ND

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS					Wheat			Flour Ext (%)	Flour Pro 14% mb	Ash 14% mb	Mix Abs (%)	MIX Pat	Bake Abs (%)	Time	Bread Characteristics			Loaf Vol (cc)	
					A	B	C	D	HI	A	B	C								DC	CC	CG		CT
MARQUIS	52.6	22.9	19	17	1	2	7	90	96	15.3	2.06	69	58.4	13.7	0.45	55.5	3	57.5	3.0	2	3	4	1	192
CHRIS	54.0	24.3	33	9	1	2	8	89	98	16.4	1.87	82	63.4	15.1	0.39	57.9	3	59.2	2.3	3	3	4	4	202
2375	57.7	29.8	41	7	0	3	12	85	90	15.2	1.80	86	64.2	13.5	0.40	56.9	3	58.3	3.3	3	3	6	5	205
VERDE	54.7	26.2	51	7	1	3	14	82	90	14.8	1.86	72	65.3	13.6	0.40	58.6	4	60.4	3.5	3	5	3	6	202
KEENE	57.6	25.9	34	9	0	2	4	94	98	15.3	1.84	81	64.6	13.4	0.41	57.6	3	59.2	3.0	3	3	4	6	208
SD8119	54.5	27.5	49	6	0	1	8	91	93	15.1	1.81	85	63.7	13.8	0.44	58.6	4	60.4	3.0	3	1	6	5	200
SD3310	58.8	29.2	61	4	2	7	18	73	83	14.7	1.71	59	63.8	13.6	0.35	55.0	2	56.4	3.3	2	3	6	4	202
SD3345	58.7	28.0	57	4	0	1	3	96	110	14.5	1.87	79	61.8	13.8	0.41	57.3	4	59.7	3.5	3	3	5	6	203
SD3348	56.7	26.0	41	11	0	3	7	90	98	15.0	1.55	75	63.3	13.7	0.34	56.9	4	59.7	4.0	3	3	3	6	197
SD3407	56.2	28.5	46	7	1	1	8	90	98	14.7	1.57	76	60.4	12.9	0.39	55.5	3	58.6	3.3	3	3	6	4	192
SD3414	57.9	26.4	14	18	1	2	5	92	108	15.2	1.62	80	61.4	13.7	0.39	56.2	5	58.3	4.0	3	3	3	5	193
MN95002	58.9	27.9	34	9	1	5	12	82	91	15.0	1.77	61	60.0	14.2	0.37	56.2	2	58.3	3.0	3	3	4	5	197
MN95229	58.2	27.7	47	8	3	2	8	87	94	15.6	1.93	68	58.8	13.9	0.40	58.2	3	59.2	3.0	2	5	3	5	201
ND709-9	58.2	29.9	60	5	1	1	12	86	90	15.4	1.78	65	60.5	14.0	0.38	52.9	5	56.4	5.0	2	5	3	5	195
ND716	58.3	26.4	51	7	1	1	4	94	96	16.4	1.85	83	61.4	15.4	0.41	59.6	4	60.4	3.3	2	3	6	5	203
ND721	57.8	28.2	42	5	1	3	6	90	95	16.5	1.86	88	63.1	15.1	0.43	60.5	5	61.3	3.5	3	5	3	5	212
ND724	56.5	28.4	52	6	0	1	7	92	99	16.3	1.76	88	65.4	15.4	0.39	59.3	4	60.4	3.0	3	3	4	4	227
ND726	59.6	25.3	43	7	0	1	6	93	99	15.5	1.79	74	60.8	13.6	0.44	57.3	3	58.3	3.0	3	3	3	6	201
N96-0144	58.2	27.9	42	5	0	0	3	97	105	14.4	1.69	87	65.0	12.7	0.43	56.2	5	58.7	4.5	2	4	6	6	182
N96-0060	54.1	24.9	35	7	1	2	7	90	94	14.5	1.77	77	63.0	12.9	0.43	58.6	4	60.3	3.5	3	4	6	6	187
N96-0111	55.2	28.9	67	4	1	3	13	83	89	14.9	1.98	74	64.4	13.7	0.42	57.9	4	59.7	3.5	2	4	4	6	194
N96-0123	56.6	26.1	53	5	0	1	5	94	97	15.3	1.85	73	64.5	14.0	0.44	58.2	4	59.3	4.0	3	4	3	6	195
WA007824	51.2	25.1	12	19	7	7	14	72	78	14.8	1.94	47	54.0	13.8	0.43	55.5	4	56.8	5.0	3	2	3	5	235
WA007839	53.4	25.6	28	14	4	6	17	73	81	15.1	1.95	55	54.8	13.6	0.41	55.3	2	56.4	3.0	3	3	3	4	200
ID0523	49.4	20.9	9	27	1	2	4	93	96	14.7	1.94	67	58.9	13.3	0.49	55.5	3	60.7	3.5	2	3	6	5	208
ID0533	54.3	26.2	28	11	1	4	15	80	85	14.9	1.96	66	59.1	13.0	0.45	59.3	4	60.3	3.3	2	3	6	5	179
98T311	54.9	27.1	43	8	1	3	11	85	88	14.8	1.79	72	63.1	13.0	0.37	52.2	1	56.4	3.0	2	3	5	5	195
98T379	55.1	25.5	26	15	0	0	9	91	93	14.4	1.83	72	60.6	12.6	0.44	55.8	3	58.7	5.0	3	5	4	4	183
FA997-703	56.4	25.6	17	14	0	1	7	92	98	16.2	1.99	71	61.0	14.2	0.43	62.1	2	63.1	2.0	2	3	4	5	193
BW748	51.4	23.6	21	16	2	2	9	87	89	16.9	1.98	68	59.0	16.2	0.45	59.0	5	60.3	3.5	3	4	5	6	248
BW252	54.6	26.4	39	9	0	2	7	91	97	16.0	1.98	76	61.9	15.1	0.43	59.3	3	60.3	3.0	3	3	6	6	227

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

HRS Wheat Uniform Regional Nursery - 1999 Crop

Brookings, SD

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS					Wheat			Flour			MIX Pat	Bake Abs(%)	Mix Time	Bread Characteristics			Loaf Vol(cc)		
					A	B	C	D	HI	Pro	Ash 14% mb	NIR Hard	Flour Ext (%)	Pro	Ash 14% mb				Mix Abs (%)	DC	CC		CG	CT
MARQUIS	58.2	24.7	37	7	1	1	6	92	85	12.7	1.87	85	60.6	11.7	0.44	50.5	1	54.5	4.0	1	3	3	1	171
CHRIS	58.8	25.4	40	9	1	5	13	81	75	14.4	1.85	94	55.8	13.5	0.42	53.8	1	58.3	3.0	3	3	3	6	195
2375	60.5	32.9	65	7	0	8	26	66	68	13.2	1.70	80	58.6	12.0	0.43	55.5	3	56.2	3.0	2	5	6	5	172
VERDE	59.0	30.4	68	5	1	4	23	72	69	13.2	1.92	90	61.9	12.1	0.39	57.9	3	59.7	2.8	3	5	3	6	185
KEENE	60.7	29.4	50	8	1	2	9	88	78	13.7	1.84	85	56.4	12.7	0.40	66.5	3	66.5	3.0	3	3	4	6	198
SD8119	61.0	33.5	80	3	1	2	27	70	71	13.5	1.84	88	59.7	12.2	0.43	53.8	2	57.9	3.5	1	3	4	5	168
SD3310	62.2	34.7	80	4	4	17	33	46	64	13.2	1.87	65	63.7	12.7	0.37	55.5	2	57.5	3.0	2	3	4	4	190
SD3345	62.6	33.9	84	3	0	3	22	75	77	13.6	1.84	93	62.1	12.6	0.40	61.1	2	61.1	2.5	2	3	5	6	177
SD3348	60.9	32.6	74	4	2	12	33	53	63	13.6	1.84	68	62.4	12.5	0.36	54.3	2	58.4	4.0	1	3	4	4	179
SD3407	60.6	35.8	74	5	2	8	24	66	69	12.9	1.72	94	60.9	11.2	0.40	54.6	2	58.8	4.0	1	3	6	4	160
SD3414	62.3	30.4	62	4	1	6	22	71	72	13.7	1.72	94	63.4	12.7	0.42	55.0	2	59.3	3.5	2	3	3	6	188
MN95002	62.2	33.2	70	5	6	15	30	49	64	13.7	1.96	78	61.4	13.2	0.42	53.2	1	59.6	3.0	2	3	6	6	177
MN95229	61.4	32.9	72	5	4	7	26	63	68	13.8	1.93	71	58.2	13.2	0.42	57.3	2	60.2	3.0	3	5	3	6	190
ND709-9	61.2	33.5	76	4	3	8	31	58	63	14.4	1.81	74	56.5	13.2	0.36	55.0	2	58.4	3.5	2	6	5	6	167
ND716	60.9	29.2	62	7	1	3	11	85	75	14.2	1.99	76	57.0	13.2	0.43	57.3	2	60.2	3.0	3	3	4	6	195
ND721	62.5	32.2	56	2	0	1	15	84	74	15.3	1.88	98	61.6	14.3	0.43	59.3	3	60.2	2.5	3	3	3	6	193
ND724	58.8	31.5	63	4	3	8	17	72	72	14.8	1.83	83	62.9	14.3	0.41	58.2	3	60.2	3.0	3	6	4	6	205
ND726	62.2	30.8	74	3	0	3	12	85	75	14.8	1.95	94	60.0	13.7	0.42	57.3	3	62.5	3.0	3	3	3	6	195
N96-0144	60.5	30.9	67	3	1	0	12	87	76	13.4	1.82	84	60.6	12.5	0.42	57.3	4	61.1	4.0	2	4	3	6	174
N96-0060	61.0	30.4	70	4	1	3	21	75	71	12.2	1.81	95	62.1	10.8	0.45	53.2	2	60.2	3.5	2	4	6	6	168
N96-0111	59.7	32.1	80	3	1	6	21	72	70	13.1	1.85	80	62.0	12.2	0.45	54.3	3	60.9	4.0	2	4	6	6	171
N96-0123	60.6	30.3	76	3	1	3	21	75	70	13.8	1.95	80	63.3	12.5	0.41	56.2	4	62.4	4.5	2	4	6	6	178
WA007824	57.9	34.3	65	5	9	19	33	39	56	12.9	1.88	63	55.6	11.9	0.42	51.6	2	58.3	4.0	2	3	6	5	198
WA007839	59.4	32.9	73	4	2	18	28	52	62	13.9	1.85	67	54.4	12.3	0.29	52.6	2	58.3	3.0	2	3	5	6	182
ID0523	53.8	27.1	47	12	2	1	12	85	75	11.7	1.92	67	55.6	10.9	0.46	53.2	2	62.4	4.0	2	3	3	5	190
ID0533	60.1	32.6	67	6	1	10	29	60	70	12.6	1.88	69	56.0	11.3	0.41	50.8	1	58.3	3.5	2	5	3	5	172
98T311	60.1	31.3	67	5	0	3	17	80	74	13.0	1.83	78	58.4	12.2	0.37	54.3	1	59.7	2.8	2	4	6	6	170
98T379	58.1	28.2	42	12	1	2	10	87	79	13.1	1.86	90	56.1	11.8	0.37	57.3	3	61.4	4.0	2	4	3	5	166
FA997-703	60.0	30.6	44	7	1	3	17	79	74	13.7	2.15	69	56.5	12.6	0.45	57.3	4	59.7	3.0	3	2	5	6	185
BW748	57.0	27.6	47	5	3	4	10	83	74	13.7	1.97	76	57.6	13.0	0.44	56.5	3	59.7	2.8	3	4	5	6	205
BW252	59.7	32.5	69	5	0	5	19	76	77	13.5	1.94	73	60.0	12.8	0.43	58.2	4	62.4	3.0	3	3	6	6	206

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

USDA/ARS Wheat Quality Laboratory, Fargo, ND
HRS Wheat Uniform Regional Nursery - 1999 Crop

6

Groton, SD

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS					Wheat			Flour			MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics			Loaf Vol (cc)		
					SKCS				HI	Pro	Ash 14% mb	NIR Hard	Flour Ext (%)	Pro	Ash 14% mb				Mix Abs (%)	DC	CC		CG	CT
					A	B	C	D																
MARQUIS	51.7	20.3	3	31	2	3	8	87	90	13.7	1.90	81	58.4	12.5	0.48	2	59.4	3.0	2	4	3	4	193	
CHRIS	55.3	22.3	10	32	2	5	12	81	77	14.7	2.00	81	55.4	13.9	0.42	2	64.2	3.0	3	3	4	4	202	
2375	54.2	24.6	8	21	3	5	13	79	72	14.3	1.94	72	53.3	12.8	0.45	2	60.4	3.0	2	4	4	5	197	
VERDE	55.7	26.0	41	9	2	8	27	63	65	13.7	1.92	70	60.1	12.5	0.40	2	58.5	2.5	2	4	3	4	192	
KEENE	55.1	24.8	25	13	4	6	11	79	72	15.1	1.98	78	56.3	13.6	0.44	2	62.5	2.5	2	3	3	5	224	
SD8119	55.0	26.3	41	11	2	6	17	75	70	14.2	1.83	82	59.2	13.3	0.42	1	60.4	3.0	2	3	6	4	210	
SD3310	58.7	27.0	48	8	6	13	27	54	65	13.5	1.82	54	56.3	12.5	0.38	2	60.4	2.8	2	4	5	5	194	
SD3345	58.2	26.4	44	9	0	3	10	87	75	14.7	1.80	62	57.4	13.0	0.42	2	61.2	3.0	2	3	4	5	196	
SD3348	56.8	26.3	46	8	3	8	28	61	63	13.9	1.84	58	57.3	12.9	0.35	2	58.5	3.5	2	3	3	6	188	
SD3407	57.4	29.1	44	7	1	9	18	72	67	13.6	1.74	69	55.9	11.9	0.39	1	58.5	4.0	2	3	5	4	182	
SD3414	58.6	24.2	11	17	0	5	13	82	75	14.1	1.68	77	58.1	12.9	0.40	2	59.1	4.5	2	3	5	6	181	
MN95002	58.0	24.5	20	13	4	10	26	60	64	14.3	2.01	65	54.1	13.9	0.38	2	56.7	3.0	2	3	3	6	191	
MN95229	57.6	26.8	38	12	6	8	20	66	66	14.8	1.93	59	54.9	13.5	0.41	2	56.7	3.5	2	5	5	4	191	
ND709-9	57.2	27.7	51	7	2	7	19	72	66	14.4	1.77	58	53.9	13.2	0.39	2	61.2	4.5	2	3	5	6	194	
ND716	57.8	25.0	30	10	1	5	7	87	74	15.3	1.95	74	54.6	14.0	0.44	2	60.0	4.0	3	3	3	6	194	
ND721	58.9	27.1	53	5	0	2	9	89	76	15.8	1.95	82	53.6	14.6	0.44	3	56.3	3.0	2	5	5	5	195	
ND724	56.1	28.0	43	7	1	3	17	79	69	16.2	1.87	84	57.9	15.4	0.42	2	58.5	3.3	3	5	4	6	230	
ND726	60.3	25.2	39	7	0	2	9	89	78	14.8	1.97	75	57.9	13.6	0.45	3	58.4	3.3	3	5	6	6	196	
N96-0144	57.7	26.9	35	5	2	2	10	86	74	13.7	1.89	88	60.9	12.0	0.43	2	62.4	4.5	2	4	3	6	178	
N96-0060	52.2	22.6	17	18	3	4	9	84	72	13.8	1.98	68	56.1	12.4	0.46	1	60.2	3.5	2	4	6	6	203	
N96-0111	54.9	25.5	37	12	3	5	21	71	68	13.9	1.92	75	57.7	12.5	0.46	3	60.2	3.0	2	4	5	6	198	
N96-0123	57.3	23.9	38	8	2	5	13	80	70	14.1	1.81	68	59.6	13.0	0.44	3	58.3	3.5	3	4	3	6	189	
WA007824	51.8	23.7	14	20	9	16	19	56	60	13.8	1.91	46	48.4	12.7	0.49	2	60.6	4.0	2	3	6	6	212	
WA007839	52.6	25.4	35	15	9	12	27	52	60	14.1	1.97	47	50.0	12.8	0.35	2	56.9	3.5	2	3	6	6	195	
ID0523	45.6	20.2	9	34	4	7	12	77	73	13.5	2.11	53	48.5	12.2	0.52	3	63.4	3.5	2	3	3	5	197	
ID0533	53.1	24.2	16	22	3	10	22	65	67	13.5	1.89	55	50.7	11.7	0.47	1	62.3	3.5	1	3	4	5	193	
98T311	54.1	25.2	30	15	3	5	16	76	69	13.7	1.81	65	54.7	12.5	0.41	1	58.2	3.0	1	3	6	4	176	
98T379	52.2	24.4	16	21	3	3	12	82	71	13.9	1.92	65	50.5	12.4	0.49	2	58.2	3.5	2	4	4	6	187	
FA997-703	54.6	25.8	13	20	5	9	23	63	63	15.0	2.11	68	51.9	13.5	0.44	2	58.2	2.0	2	3	3	5	180	
BW748	50.6	23.1	12	25	6	10	16	68	67	15.3	2.05	60	49.4	14.4	0.49	3	59.3	4.0	3	3	5	5	223	
BW252	53.8	25.4	33	13	2	7	15	76	72	14.7	2.00	66	56.8	13.6	0.48	3	62.4	3.3	3	3	3	6	227	

SKCS - Single Kernel Characterization System:

A = % soft
B = % semi-soft
C = % semi-hard
D = % hard
HI = Hardness Index

Bread Characteristics:
DC: dough characteristics
CC: crumb color
CG: crumb grain
CT: crumb texture

HRS Wheat Uniform Regional Nursery - 1999 Crop

Selby, SD

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS					Wheat			Flour			MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics			Loaf Vol (cc)		
					A B C D HI					Pro 14% mb	Ash	NIR Hard	Flour Ext (%)	Pro 14% mb	Ash				Mix Abs (%)	DC	CC		CG	CT
					A	B	C	D	HI															
MARQUIS	56.1	24.7	34	12	1	3	7	89	82	14.1	1.72	78	58.8	12.9	0.41	53.5	2	57.0	3.0	2	4	3	5	202
CHRIS	57.0	24.3	26	11	3	3	11	83	77	14.3	1.78	83	57.6	13.2	0.36	55.8	2	60.1	3.3	3	4	6	6	203
2375	58.0	27.0	31	10	1	2	15	82	73	13.4	1.82	78	57.3	12.4	0.41	55.0	3	58.4	3.3	3	4	6	6	188
VERDE	55.3	25.1	37	13	2	6	16	76	69	12.9	1.78	77	58.6	12.0	0.39	56.5	3	56.5	4.3	2	4	6	5	195
KEENE	60.9	31.0	57	5	0	3	17	80	69	14.8	1.71	80	54.6	13.5	0.38	57.6	3	59.3	3.0	3	6	4	6	193
SD8119	58.6	29.1	53	7	0	1	14	85	74	13.8	1.66	83	57.2	12.6	0.39	57.3	3	58.4	3.5	2	3	3	5	193
SD3310	61.3	30.2	63	4	3	17	34	46	59	13.8	1.54	53	58.7	13.4	0.32	57.3	3	60.1	3.0	3	3	3	4	208
SD3345	62.2	31.1	65	3	1	3	13	83	69	14.0	1.62	79	57.9	12.8	0.35	57.3	3	58.4	3.5	2	3	4	5	205
SD3348	59.5	27.7	48	2	1	6	19	74	67	14.0	1.58	68	55.8	13.0	0.33	55.8	3	57.0	4.3	2	3	6	5	197
SD3407	60.1	29.5	46	9	2	3	13	82	71	13.1	1.61	82	54.4	11.5	0.35	53.8	3	57.9	4.5	2	5	3	6	178
SD3414	59.0	24.7	13	20	2	4	12	82	74	13.9	1.63	70	54.5	12.6	0.39	57.3	3	58.4	4.8	2	4	5	5	181
MN95002	61.2	28.1	37	7	3	9	31	57	61	13.2	1.75	56	55.8	12.7	0.39	55.5	2	56.6	3.3	2	3	3	5	191
MN95229	58.2	26.7	27	15	8	8	21	63	63	13.5	1.85	67	53.3	12.6	0.40	55.0	2	58.4	3.5	2	3	3	5	194
ND709-9	59.7	30.6	64	4	1	6	22	71	66	13.5	1.57	72	55.1	12.5	0.38	60.8	5	62.5	3.5	2	5	6	5	174
ND716	59.0	27.1	26	11	3	5	10	82	71	14.2	1.94	81	54.5	12.9	0.44	57.9	3	60.1	3.5	2	3	4	6	193
ND721	62.6	31.1	71	2	0	3	14	83	71	14.9	1.76	93	60.7	13.5	0.38	58.2	3	59.4	2.8	2	6	6	6	218
ND724	59.9	31.6	60	4	1	5	25	69	67	15.1	1.55	86	63.1	13.9	0.38	57.9	3	60.1	3.0	3	5	5	6	209
ND726	61.6	27.4	37	10	0	3	8	89	77	14.4	1.84	79	59.7	13.2	0.42	54.3	3	59.3	3.5	3	3	6	6	192
N96-0144	59.9	28.1	37	9	1	3	14	82	74	13.2	1.63	83	63.1	12.3	0.40	60.8	5	62.4	4.0	2	4	3	6	182
N96-0060	56.1	25.9	23	6	2	4	9	85	72	13.9	1.75	78	59.8	12.3	0.43	56.2	3	57.2	4.0	2	3	4	5	198
N96-0111	57.1	29.0	53	7	1	4	17	78	70	13.4	1.85	76	55.8	12.1	0.43	52.9	2	58.8	4.3	2	3	3	5	190
N96-0123	58.8	27.7	51	3	2	2	14	82	71	13.5	1.85	85	60.1	12.7	0.43	58.2	3	59.3	3.5	2	3	5	5	190
WA007824	56.2	30.3	38	10	6	9	24	61	62	13.4	1.79	59	49.1	12.5	0.41	52.6	2	56.4	5.0	3	5	5	6	200
WA007839	56.8	30.0	56	9	4	14	29	53	61	13.8	1.84	54	53.3	12.7	0.43	55.5	2	60.9	3.0	3	6	5	6	230
ID0523	52.2	24.1	22	2	1	3	5	91	81	13.0	1.96	71	54.0	11.5	0.45	55.3	3	60.4	4.0	2	5	3	6	187
ID0533	56.1	30.2	44	10	5	12	22	61	64	13.2	1.80	59	54.0	12.1	0.43	55.5	3	56.8	3.5	2	3	3	6	184
98T311	56.3	27.1	41	10	1	3	15	81	72	13.2	1.66	74	58.7	12.0	0.35	52.2	2	57.5	3.5	2	4	3	5	181
98T379	55.8	26.4	20	17	0	2	11	87	75	13.4	1.87	67	52.8	11.7	0.45	57.3	3	60.4	4.5	2	4	4	6	175
FA997-703	59.5	29.8	41	7	1	4	20	75	67	14.2	1.89	77	54.9	12.6	0.40	56.9	1	58.3	2.0	2	3	5	5	173
BW748	55.3	26.3	33	11	3	6	23	68	67	15.4	1.81	69	56.1	14.9	0.42	59.3	4	60.4	3.5	3	3	6	6	239
BW252	55.3	28.7	36	10	2	4	16	78	74	14.7	1.96	74	58.1	13.9	0.43	58.2	3	59.6	3.0	3	3	3	6	219

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

USDA/ARS Wheat Quality Laboratory, Fargo, ND
HRS Wheat Uniform Regional Nursery - 1999 Crop

Morris, MN

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS					Wheat			Flour			MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics			Loaf Vol (cc)			
					A			B		HI	Pro 14% mb	Ash	NIR	Flour Ext (%)	Pro 14% mb				Ash	Mix Abs (%)	DC		CC	CG	CT
					A	B	C	D																	
MARQUIS	56.8	24.9	34	10	1	2	9	88	91	14.5	1.89	77	58.1	13.0	0.50	55.6	2	55.6	3.0	3	3	5	4	192	
CHRIS	57.2	24.4	32	12	1	2	11	86	86	15.9	1.83	83	57.7	14.4	0.44	57.3	3	59.2	3.3	3	3	4	6	215	
2375	57.8	29.9	50	7	1	5	16	78	82	14.6	1.85	71	59.8	13.4	0.44	56.5	3	58.4	3.8	3	3	3	5	192	
VERDE	56.8	28.1	53	8	1	3	11	85	81	15.0	1.97	76	62.3	13.7	0.42	58.6	3	60.3	3.5	3	3	3	6	197	
KEENE	59.8	30.1	60	4	1	1	9	89	93	15.0	1.69	78	54.3	13.6	0.41	57.3	3	59.2	4.0	2	5	3	6	188	
SD8119	57.8	29.1	54	5	0	4	9	87	90	15.2	1.79	83	61.9	13.9	0.45	58.6	3	58.8	4.0	2	3	6	5	191	
SD3310	59.4	29.0	58	4	1	5	13	81	93	14.9	1.74	61	61.5	13.9	0.41	57.6	3	58.4	3.5	3	3	6	5	193	
SD3345	60.1	29.8	61	5	1	2	8	89	93	15.7	1.76	75	62.0	14.5	0.40	59.6	4	60.3	3.5	3	3	3	6	208	
SD3348	58.7	29.5	64	4	2	5	17	76	78	15.0	1.83	72	63.7	13.6	0.37	57.6	3	58.4	4.0	3	3	3	6	190	
SD3407	58.9	31.5	62	8	1	3	10	86	98	14.0	1.71	81	59.7	12.1	0.38	56.9	4	56.9	3.5	2	3	5	6	168	
SD3414	60.4	26.3	25	16	0	1	6	93	102	15.7	1.64	82	61.2	13.9	0.40	56.5	4	56.5	5.0	2	5	6	5	166	
MN95002	58.5	27.9	36	10	4	9	18	69	75	15.7	1.96	59	58.7	14.6	0.41	55.8	4	56.9	3.3	2	5	4	6	196	
MN96229	60.0	29.0	55	8	3	4	10	83	87	15.4	1.99	73	59.6	14.1	0.42	57.9	3	59.7	3.5	2	5	3	5	190	
ND709-9	59.9	30.4	66	6	0	6	15	79	82	15.7	1.78	70	58.1	14.5	0.42	57.9	5	59.7	3.8	3	5	5	6	195	
ND716	61.3	29.5	55	7	1	0	6	93	98	15.7	1.88	74	60.1	14.4	0.42	58.6	5	60.9	3.5	3	5	4	6	192	
ND721	60.6	29.2	58	5	1	2	5	92	93	16.4	1.73	98	65.9	15.4	0.40	60.5	4	60.3	3.0	3	5	4	5	212	
ND724	57.4	29.7	59	2	0	1	5	94	99	16.5	1.79	86	61.7	15.7	0.42	60.0	5	60.9	3.0	3	5	3	6	227	
ND726	61.6	28.1	51	8	1	1	5	93	101	15.7	1.72	86	60.6	14.3	0.40	59.0	5	60.3	3.3	3	3	5	6	205	
N96-0144	59.4	30.7	57	5	0	1	9	90	89	15.4	1.76	84	60.9	14.0	0.46	59.3	5	60.3	4.0	2	4	3	5	172	
N96-0060	59.0	30.2	65	5	1	4	12	83	84	14.1	1.72	84	62.4	12.2	0.40	57.3	4	58.4	4.0	3	3	3	5	177	
N96-0111	56.3	28.3	57	5	0	7	15	78	79	15.4	1.88	78	62.0	14.5	0.49	60.0	5	60.9	3.8	3	3	3	5	185	
N96-0123	58.0	29.7	65	3	1	2	9	88	93	15.3	1.92	84	62.1	14.1	0.45	59.3	5	60.5	3.8	3	4	3	6	172	
WA007824	56.4	30.3	44	8	4	6	13	77	84	14.5	1.89	58	54.6	13.5	0.44	55.5	3	57.4	4.5	2	5	3	4	190	
WA007839	58.2	31.5	60	6	2	14	27	57	64	14.7	1.92	67	56.8	13.2	0.39	53.2	2	56.1	3.5	2	3	6	5	193	
ID0523	53.9	26.3	42	11	1	3	18	78	72	13.0	1.87	76	52.3	11.3	0.47	52.9	2	57.4	4.0	2	3	6	5	166	
ID0533	59.2	33.1	65	4	3	14	33	50	61	13.8	1.81	74	54.5	12.1	0.42	51.5	2	55.0	3.8	2	3	6	6	161	
98T311	59.2	28.8	58	3	0	1	7	92	78	14.6	1.78	79	56.5	13.1	0.40	53.8	2	57.2	3.0	2	6	6	5	178	
98T379	58.3	27.1	27	12	0	2	9	89	76	14.8	1.86	79	56.9	13.2	0.50	57.3	3	58.4	4.3	2	3	6	4	162	
FA997-703	59.0	29.7	28	5	1	2	15	82	78	15.5	1.97	87	55.4	14.0	0.48	60.5	3	60.5	2.8	2	6	6	6	185	
BW748	55.4	27.0	34	12	3	4	20	73	73	16.3	1.93	79	60.7	15.8	0.45	60.0	6	60.9	3.8	3	3	3	6	214	
BW252	58.8	32.4	71	3	1	6	19	74	75	14.7	1.86	82	62.0	13.6	0.44	57.6	3	59.3	2.8	3	5	6	6	216	

SKCS - Single Kernel Characterization System:

A = % soft
B = % semi-soft
C = % semi-hard
D = % hard
HI = Hardness Index

Bread Characteristics:
DC: dough characteristics
CC: crumb color
CG: crumb grain
CT: crumb texture

HRS Wheat Uniform Regional Nursery - 1999 Crop

St. Paul, MN

Variety	TW lb/bu	KWT gm	LG %	SM	SKCS					Wheat			Flour			MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics			Loaf Vol (cc)		
					A B C D HI					Pro 14% mb	Ash	NIR Hard	Flour Ext (%)	Pro 14% mb	Ash				Mix Abs (%)	DC	CC		CG	CT
					A	B	C	D	HI															
MARQUIS	54.9	24.1	25	13	1	4	7	88	97	14.0	2.05	68	59.2	12.7	0.67	53.5	2	56.4	3.0	3	3	6	5	185
CHRIS	54.9	23.7	24	14	2	3	9	86	85	14.6	1.99	78	59.6	13.4	0.49	56.5	2	59.9	2.8	3	5	6	6	193
2375	57.8	28.9	54	7	3	8	14	75	81	13.9	1.89	75	62.0	12.3	0.43	53.2	2	57.2	3.0	3	5	6	6	182
VERDE	56.4	27.7	55	4	4	11	20	65	73	13.4	1.85	78	64.9	12.0	0.42	55.5	2	56.8	2.5	2	5	6	6	176
KEENE	58.0	28.9	57	4	1	7	18	74	77	13.5	1.85	72	62.0	12.1	0.41	55.5	2	57.2	3.0	2	3	6	6	174
SD8119	57.4	30.1	71	3	2	9	24	65	73	13.6	1.86	76	62.6	12.2	0.45	55.8	2	57.2	3.0	2	3	4	6	176
SD3310	58.6	29.4	64	4	9	13	19	59	72	13.3	2.02	60	61.6	12.2	0.32	53.2	2	54.6	3.3	2	3	4	4	167
SD3345	58.7	29.7	69	3	2	3	10	85	94	14.3	1.93	77	63.0	12.9	0.42	63.7	3	64.3	2.5	3	3	3	6	193
SD3348	57.1	27.2	53	7	2	8	16	74	81	13.6	1.92	74	61.8	12.6	0.36	55.0	2	58.5	4.0	2	5	6	5	181
SD3407	58.3	30.5	62	6	0	6	15	79	90	13.6	1.89	75	61.3	11.7	0.39	55.8	3	56.8	3.3	2	3	3	6	173
SD3414	59.1	27.4	33	10	0	5	8	87	95	13.7	1.89	80	62.3	12.3	0.41	53.2	2	60.3	3.8	2	3	3	5	172
MN95002	57.6	27.1	41	9	4	11	14	71	80	14.3	2.09	60	60.1	13.6	0.40	55.5	3	57.9	2.5	3	3	6	6	185
MN95229	59.7	29.7	60	4	2	4	15	79	83	14.5	1.98	79	61.0	13.2	0.42	58.2	3	59.4	3.0	3	6	3	6	185
ND709-9	59.0	30.1	68	3	1	9	13	77	83	14.5	1.82	67	60.2	13.2	0.41	57.3	3	59.4	3.0	3	3	3	5	188
ND716	59.7	27.8	61	5	1	2	7	90	98	14.1	1.87	82	59.2	12.9	0.43	56.9	3	60.3	3.0	3	6	4	5	190
ND721	60.1	28.3	58	5	0	1	9	90	89	15.2	2.02	86	62.6	14.0	0.43	56.5	2	57.2	3.5	2	5	6	6	200
ND724	57.3	28.2	54	4	0	2	12	86	87	14.9	1.85	92	62.1	13.7	0.41	55.0	2	56.4	3.3	2	3	3	6	206
ND726	60.7	27.7	51	6	2	2	12	84	83	14.6	1.97	83	58.9	13.0	0.45	53.2	2	56.4	3.0	3	4	3	6	190
N96-0144	58.2	29.4	58	3	2	7	16	75	82	13.6	1.83	83	60.6	12.3	0.47	53.5	2	55.6	3.5	2	4	5	5	161
N96-0060	57.4	28.8	59	6	3	14	17	66	72	12.4	1.87	69	61.7	10.9	0.43	52.9	2	56.1	3.5	2	4	6	4	164
N96-0111	56.6	29.0	66	4	1	8	26	65	72	12.3	1.91	71	60.3	12.7	0.45	51.9	2	56.5	4.0	2	3	6	5	163
N96-0123	57.0	26.7	63	4	1	4	16	79	78	13.7	1.99	78	61.0	13.0	0.44	55.8	2	57.3	4.0	2	4	6	5	172
WA007824	56.6	30.6	44	9	9	11	18	62	70	13.9	1.89	56	55.4	12.9	0.42	50.8	1	54.7	4.3	2	3	6	6	179
WA007839	57.5	30.7	66	3	1	9	22	68	79	13.7	1.94	67	59.6	12.3	0.50	53.2	2	54.4	3.0	2	5	6	5	188
ID0523	54.2	26.0	51	8	1	3	17	79	86	12.1	1.86	71	59.2	10.5	0.41	52.2	1	60.0	4.0	3	6	3	6	200
ID0533	58.4	28.6	51	7	2	4	16	78	86	13.2	1.91	77	59.6	11.5	0.43	49.9	1	54.1	4.0	1	6	3	6	180
98T311	59.4	28.5	57	4	0	1	7	92	87	13.7	1.87	75	62.6	12.2	0.42	52.9	1	56.1	3.0	2	5	6	6	167
98T379	57.4	26.9	34	9	1	2	15	82	79	13.1	1.88	74	63.2	12.0	0.47	55.8	2	58.8	4.3	2	3	6	6	165
FA997-703	59.0	28.4	32	6	1	2	9	88	93	13.7	2.05	73	60.9	12.6	0.45	54.6	2	58.4	2.5	2	3	6	6	178
BW748	54.8	25.5	33	9	2	3	6	89	88	14.7	1.99	69	62.9	14.1	0.47	56.2	4	57.3	3.3	3	3	6	6	207
BW252	57.8	29.8	68	3	2	5	13	80	87	13.2	1.94	79	65.0	12.2	0.47	53.2	2	58.4	3.0	2	3	6	6	188

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

HRS Wheat Uniform Regional Nursery - 1999 Crop

Sidney, MT

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS					Wheat			Flour			Mix Abs (%)	MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics				Loaf Vol (cc)	
					SKCS					Pro	Ash 14% mb	NIR Hard	Flour Ext (%)	Pro	Ash 14% mb					Mix Abs (%)	DC	CC	CG		CT
					A	B	C	D	HI																
MARQUIS	61.2	28.6	57	4	1	0	5	94	107	11.9	1.69	74	62.7	11.6	0.47	47.9	1	54.4	3.5	2	3	6	4	143	
CHRIS	61.7	26.9	53	4	0	0	4	96	115	12.9	1.60	71	65.6	12.5	0.41	48.2	1	56.8	3.0	2	3	3	5	175	
2375	62.4	34.4	73	2	0	1	6	93	101	11.8	1.59	79	65.6	11.2	0.41	49.9	1	58.3	3.0	2	5	5	6	157	
VERDE	61.5	31.7	74	2	0	0	10	90	98	11.8	1.57	69	66.8	11.4	0.35	52.2	2	57.0	3.3	2	3	3	6	159	
KEENE	62.4	29.2	47	3	0	0	1	99	108	12.5	1.58	74	63.4	11.1	0.41	55.3	2	58.6	3.0	2	3	6	6	166	
SD8119	62.1	32.6	81	2	1	1	8	90	96	11.5	1.65	71	64.2	10.5	0.43	53.8	2	62.4	2.5	2	1	3	5	158	
SD3310	63.4	33.0	74	2	2	3	13	82	91	11.8	1.62	63	62.9	11.6	0.36	53.8	2	58.3	2.5	2	1	6	4	151	
SD3345	64.2	32.8	73	2	1	1	2	96	105	12.3	1.58	84	64.7	11.2	0.40	55.5	2	61.2	2.8	2	1	5	6	160	
SD3348	61.8	30.7	64	4	1	1	12	86	93	11.7	1.52	57	64.6	11.2	0.34	53.2	2	57.0	3.3	2	1	3	4	161	
SD3407	63.2	35.6	82	2	1	1	14	84	93	11.5	1.41	76	63.9	10.3	0.37	55.3	2	58.3	3.0	2	3	6	6	158	
SD3414	63.8	30.2	40	5	1	2	7	90	103	12.3	1.51	76	60.9	11.5	0.35	52.9	2	60.4	3.0	2	3	5	5	162	
MN95002	63.9	31.4	65	4	1	1	4	94	107	11.6	1.59	66	61.0	11.1	0.38	51.9	1	59.2	2.8	2	4	6	5	154	
MN95229	63.1	33.6	76	1	1	1	7	91	97	12.8	1.59	76	61.5	12.4	0.39	54.3	2	57.9	3.0	2	5	3	4	171	
ND709-9	62.7	36.4	84	1	2	5	14	79	86	12.8	1.62	65	62.3	12.6	0.37	53.2	2	56.1	3.0	2	5	3	5	157	
ND716	62.7	33.3	79	1	1	2	3	94	105	12.4	1.65	79	59.7	11.9	0.41	52.6	2	59.7	3.0	2	3	3	6	154	
ND721	63.1	33.1	77	1	1	0	4	95	99	12.7	1.70	73	63.1	11.7	0.41	53.8	2	56.3	3.0	2	3	3	6	165	
ND724	59.4	28.8	58	7	1	0	2	97	106	10.5	1.66	70	59.9	9.7	0.40	50.8	1	58.3	4.0	2	5	5	5	156	
ND726	64.2	31.1	61	3	3	0	4	93	98	13.1	1.69	69	60.3	12.3	0.39	54.3	2	60.6	2.5	3	3	5	6	174	
N96-0144	61.8	31.0	60	3	1	2	4	93	100	11.4	1.61	85	63.3	10.7	0.42	52.9	1	58.3	3.0	1	1	5	5	149	
N96-0060	61.6	30.7	60	6	1	2	5	92	105	10.8	1.67	80	60.6	9.7	0.42	49.6	1	57.9	4.0	1	1	4	4	142	
N96-0111	61.0	31.5	74	2	0	1	9	90	95	11.5	1.65	83	62.8	10.6	0.39	51.9	1	58.3	4.0	1	1	6	4	140	
N96-0123	63.0	29.5	68	3	0	0	6	94	103	10.8	1.62	74	62.9	9.8	0.40	49.9	1	57.4	3.5	1	1	6	4	134	
WA007824	60.8	35.1	67	3	2	2	14	82	88	11.4	1.69	67	61.7	10.2	0.39	51.6	1	57.9	3.0	2	3	6	4	157	
WA007839	61.0	34.4	75	3	2	5	13	80	87	11.9	1.63	55	57.4	11.4	0.39	51.6	1	55.2	3.0	2	5	6	4	168	
ID0523	60.6	31.1	59	2	1	1	7	91	101	13.5	1.64	84	62.0	13.0	0.38	54.6	2	60.8	3.0	3	5	6	6	189	
ID0533	62.3	34.1	79	3	1	2	14	83	98	10.6	1.55	55	59.3	9.7	0.29	48.2	1	54.4	4.0	1	3	3	4	145	
98T311	59.5	31.8	66	3	0	2	8	90	98	11.8	1.63	72	60.9	11.2	0.35	50.8	1	58.3	3.0	1	4	6	5	159	
98T379	60.3	34.2	70	2	1	2	6	91	100	11.4	1.60	74	61.6	10.6	0.40	53.2	2	58.8	4.0	2	4	6	4	149	
FA997-703	61.4	32.4	57	3	1	1	5	93	100	12.2	1.56	73	60.6	11.7	0.42	51.9	1	59.3	2.5	1	3	6	4	162	
BW748	60.2	30.4	60	4	2	2	6	90	97	12.5	1.72	63	59.7	11.9	0.47	51.9	1	58.3	3.5	2	3	3	6	161	
BW252	61.4	35.2	84	2	2	3	14	81	95	11.6	1.68	70	62.3	10.9	0.42	51.3	1	56.7	3.0	2	3	3	4	165	

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

HRS Wheat Uniform Regional Nursery - 1999 Crop

Williston, ND

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS								Wheat				Flour				MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics				Loaf Vol (cc)
					A				B				HI	Pro 14% mb	Ash 14% mb	NIR Hard	Flour Ext (%)	Pro 14% mb	Ash 14% mb	Mix Abs (%)				DC	CC	CG	CT	
					A	B	C	D	A	B	C	D																
MARQUIS	59.5	29.6	51	3	2	11	23	64	75	14.2	1.41	68	57.6	13.6	0.39	52.6	1	52.6	2.5	1	3	6	4	181				
CHRIS	57.4	26.9	40	8	7	14	24	55	66	16.5	1.56	82	58.5	16.0	0.37	56.5	2	57.5	2.3	3	3	4	5	196				
2375	61.0	35.0	63	2	2	12	28	58	66	13.9	1.22	81	62.3	12.7	0.38	54.3	2	56.1	3.3	2	3	3	5	173				
VERDE	59.4	31.3	67	2	4	14	30	52	65	14.0	1.27	89	63.7	13.2	0.30	54.3	2	56.1	2.5	3	3	5	5	179				
KEENE	60.1	27.5	25	6	0	3	12	85	87	15.4	1.28	76	59.8	14.2	0.31	55.5	2	57.2	3.0	3	5	3	6	183				
SD8119	59.5	30.6	56	2	1	5	22	72	72	14.6	1.36	86	64.0	13.4	0.34	57.3	2	58.6	3.0	3	3	6	6	181				
SD3310	61.4	29.3	54	3	3	9	26	62	73	15.1	1.31	54	60.6	14.1	0.31	55.5	2	56.7	3.0	3	3	3	5	180				
SD3345	61.6	30.4	56	2	1	2	13	84	83	14.7	1.32	76	61.9	13.7	0.32	55.5	2	56.8	3.3	2	3	5	6	180				
SD3348	59.2	29.5	46	5	4	12	31	53	68	14.6	1.25	59	62.4	14.2	0.28	55.5	2	56.7	3.5	2	3	3	6	180				
SD3407	61.6	32.4	72	2	1	4	18	77	82	13.0	1.18	81	61.0	11.8	0.31	54.6	2	58.4	3.0	2	3	5	6	170				
SD3414	61.4	27.3	25	7	1	2	12	85	81	14.0	1.21	75	63.8	12.9	0.30	54.6	2	56.3	3.3	2	3	3	5	173				
MN95002	60.9	29.2	37	5	2	10	19	69	78	14.9	1.23	68	59.0	14.0	0.28	53.2	1	58.4	3.0	3	3	3	5	180				
ND709-9	61.4	35.4	78	1	2	19	27	52	68	15.4	1.38	67	59.1	13.8	0.33	60.0	4	60.1	3.0	3	5	3	6	193				
ND716	61.4	30.6	78	2	3	4	20	73	73	15.1	1.38	85	62.4	14.4	0.34	58.6	3	58.6	3.0	3	3	3	5	197				
ND721	60.6	30.9	54	2	1	3	18	78	72	16.2	1.33	88	63.8	14.6	0.34	58.6	3	59.5	3.0	3	3	4	5	190				
ND724	58.7	29.6	44	2	1	3	16	80	81	15.9	1.39	92	64.7	15.6	0.34	59.3	3	60.4	2.5	3	3	6	6	205				
ND726	62.6	27.5	34	4	1	1	8	90	86	15.1	1.34	75	61.8	13.9	0.32	57.3	3	58.4	3.3	3	3	4	6	186				
N96-0144	60.3	32.1	52	3	1	4	18	77	80	13.8	1.36	85	63.6	13.3	0.35	55.5	3	58.5	3.5	2	4	6	6	163				
N96-0060	59.8	29.5	53	3	3	10	26	61	66	13.4	1.32	80	64.2	12.0	0.33	56.2	3	58.6	3.3	3	3	6	5	168				
N96-0111	59.4	31.2	66	1	2	9	26	63	67	13.8	1.30	79	64.0	13.0	0.32	55.0	3	58.6	3.5	3	4	3	5	171				
N96-0123	60.0	28.8	55	2	2	7	23	68	71	14.4	1.41	82	65.6	13.5	0.34	56.9	4	58.5	3.5	2	1	3	5	168				
WA007824	59.6	35.8	61	2	7	12	21	60	71	13.7	1.34	64	61.2	13.3	0.32	55.5	3	56.2	3.5	3	5	3	6	194				
WA007839	60.5	34.8	77	1	10	26	32	32	55	14.8	1.35	45	58.7	14.1	0.29	56.2	2	57.4	3.0	3	3	4	6	197				
ID0523	58.6	29.2	50	5	1	5	17	77	73	13.1	1.33	70	62.6	12.1	0.35	55.0	2	57.4	3.0	2	6	5	6	185				
ID0533	61.1	34.5	67	2	5	21	30	44	61	13.7	1.31	54	59.5	12.1	0.32	53.2	2	56.2	3.5	2	6	4	6	176				
98T311	60.2	30.1	61	2	1	6	20	73	75	14.5	1.23	67	60.0	13.9	0.27	53.5	1	57.0	2.5	2	3	6	4	172				
98T379	60.3	29.7	40	5	1	2	10	87	93	14.4	1.29	88	64.3	12.7	0.33	56.9	2	58.6	3.0	2	5	3	6	171				
FA997-703	59.9	29.0	19	2	0	3	15	82	86	15.4	1.38	69	60.8	13.7	0.32	58.2	2	58.5	2.0	2	5	3	5	176				
BW748	59.1	28.9	43	2	2	4	14	80	84	15.3	1.39	71	64.2	14.8	0.33	58.2	4	59.7	2.5	3	2	3	6	197				
BW252	59.8	34.4	72	2	3	13	30	54	65	14.7	1.39	80	63.2	13.4	0.30	57.9	2	58.6	2.5	3	5	3	6	192				

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

HRS Wheat Uniform Regional Nursery - 1999 Crop

Bozeman, MT

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS					Wheat			Flour			Bread Characteristics			Loaf Vol (cc)					
					A B C D				HI	Pro	Ash	NIR	Flour Ext (%)	Pro	Ash	MIX Pat	Bake Abs (%)	Mix Time		DC CC CG				
					A	B	C	D												DC	CC	CG		
MARQUIS	60.5	29.4	48	3	1	8	21	70	65	16.0	1.35	67	56.2	14.6	0.36	55.3	2	56.2	3.3	2	3	3	5	190
CHRIS	60.1	27.5	46	4	2	9	20	69	64	15.6	1.36	71	57.5	14.7	0.34	55.5	2	56.8	2.5	3	4	5	5	196
2375	62.9	37.1	81	0	1	2	12	85	70	14.0	1.21	76	60.8	12.6	0.34	55.0	2	59.7	3.3	2	5	3	6	178
VERDE	60.6	35.5	83	1	1	5	27	67	63	15.2	1.34	73	62.4	14.4	0.34	56.5	2	57.5	2.3	3	5	3	6	192
KEENE	59.2	29.5	63	3	1	1	11	87	70	15.1	1.43	68	55.5	14.4	0.31	56.9	2	58.4	2.5	3	6	3	6	200
SD8119	59.5	29.1	41	4	1	1	9	89	73	15.2	1.38	63	61.5	14.8	0.40	56.9	2	59.3	3.0	2	4	4	5	194
SD3310	61.1	30.4	50	2	4	17	40	39	56	15.3	1.39	47	62.5	14.5	0.35	57.3	2	58.2	3.0	3	4	5	6	202
SD3345	61.8	28.4	36	2	0	1	8	91	75	15.5	1.36	67	63.5	15.4	0.36	56.2	2	58.2	2.5	3	4	4	6	186
SD3348	59.9	30.6	53	4	1	3	15	81	70	14.4	1.27	56	61.6	13.7	0.31	54.6	3	56.4	3.0	2	3	6	5	183
SD3407	61.6	36.2	75	1	0	1	13	86	70	13.9	1.23	76	60.6	12.7	0.34	55.0	3	56.4	2.8	2	5	6	5	172
SD3414	62.3	29.0	29	6	0	3	12	85	71	14.7	1.30	80	64.9	14.2	0.35	56.5	3	56.2	2.8	2	5	6	4	178
MN95002	62.2	32.3	57	2	2	13	39	46	58	15.3	1.31	61	63.6	14.0	0.33	53.8	2	55.1	2.5	2	1	3	5	182
MN95229	61.9	30.8	50	3	0	2	8	90	75	14.8	1.40	71	61.6	14.2	0.36	56.2	2	57.0	2.5	2	6	5	6	195
ND709-9	62.2	38.6	87	1	1	8	28	63	63	14.9	1.42	59	62.7	14.7	0.35	57.6	4	59.6	2.5	2	3	6	3	193
ND716	62.0	33.4	69	2	0	1	11	88	72	15.0	1.32	71	63.5	14.1	0.36	55.5	3	57.5	2.8	2	3	5	6	192
ND721	62.2	33.0	71	2	0	1	11	88	72	15.8	1.42	87	65.2	14.7	0.37	57.9	2	59.6	2.3	3	3	6	3	194
ND724	60.1	29.8	44	3	1	2	10	87	72	16.3	1.27	89	60.0	15.7	0.35	56.2	2	57.5	2.3	3	3	6	5	190
ND726	63.0	28.2	43	3	0	0	3	97	81	15.6	1.42	82	58.8	15.0	0.34	56.5	3	57.9	3.5	3	3	3	6	200
N96-0144	60.8	31.1	50	2	0	0	5	95	76	15.0	1.43	85	59.9	14.2	0.42	56.9	3	58.4	3.5	2	3	3	6	172
N96-0060	58.2	27.1	32	9	1	1	8	90	74	14.9	1.43	77	62.9	14.0	0.36	55.5	3	56.8	3.5	2	4	5	5	170
N96-0111	60.6	34.5	76	2	0	3	15	82	69	15.4	1.45	89	63.5	14.0	0.35	56.5	4	58.4	3.3	2	3	3	6	180
N96-0123	60.6	29.6	62	2	0	2	10	88	72	14.9	1.39	82	64.0	13.8	0.36	57.6	4	58.4	3.3	2	4	4	6	168
WA007824	58.2	34.8	55	4	1	5	24	70	63	14.4	1.37	50	44.0	13.6	0.32	55.8	3	58.4	3.3	2	4	4	6	168
WA007839	58.2	32.0	47	3	1	9	23	67	63	15.0	1.45	53	54.8	14.2	0.36	55.0	2	56.1	2.5	2	4	3	6	194
ID0523	60.6	30.7	67	3	0	0	2	98	82	13.2	1.31	70	57.8	12.8	0.35	55.5	2	57.8	3.0	2	6	3	6	167
ID0533	60.3	34.3	64	2	0	5	25	70	65	14.2	1.36	49	55.0	12.8	0.34	53.8	2	55.5	3.5	2	3	6	5	160
98T311	59.4	29.4	46	4	1	1	6	92	74	15.0	1.28	62	47.9	14.1	0.36	53.2	2	56.0	3.0	2	3	5	5	169
98T379	58.4	28.4	26	10	0	0	4	96	82	14.8	1.44	74	51.4	13.4	0.38	55.8	3	56.8	3.5	2	3	4	5	172
FA997-703	61.0	34.4	66	1	0	1	15	84	71	15.7	1.39	75	54.8	13.5	0.33	57.9	2	59.6	2.0	3	3	3	5	175
BW748	59.8	28.2	44	3	0	2	18	80	70	15.9	1.34	79	62.3	15.3	0.32	60.0	5	59.3	2.5	3	3	3	6	208
BW252	61.6	36.6	85	1	0	3	16	81	68	15.4	1.42	76	61.4	14.3	0.34	60.8	3	59.3	2.3	3	5	6	5	198

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

HRS Wheat Uniform Regional Nursery - 1999 Crop

Havre, MT

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS					Wheat			Flour			MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics			Loaf Vol (cc)		
					A	B	C	D	HI	Pro	Ash 14% mb	NIR Hard	Flour Ext (%)	Pro	Ash 14% mb				Mix Abs (%)	DC	CC		CT	
MARQUIS	57.2	26.4	37	6	1	6	10	83	94	14.2	1.54	78	63.5	13.6	0.39	56.2	3	58.4	3.0	2	3	5	6	180
CHRIS	54.2	21.5	5	26	2	2	6	90	100	15.0	1.61	69	61.5	14.6	0.40	55.8	3	58.4	3.0	2	3	6	6	185
2375	55.5	27.5	19	8	3	3	7	87	102	13.6	1.49	67	62.7	13.3	0.44	56.5	2	58.4	2.8	3	3	5	5	186
VERDE	56.2	28.0	38	6	0	4	9	87	97	13.2	1.42	68	65.9	12.6	0.34	55.5	2	57.3	3.3	2	3	6	4	166
KEENE	57.0	25.0	9	10	0	1	3	96	114	14.3	1.45	68	62.8	14.0	0.40	57.3	3	60.1	2.5	2	3	6	6	188
SD8119	54.3	25.5	16	12	1	3	7	89	97	13.5	1.54	66	63.4	13.0	0.42	55.5	2	59.7	2.8	2	4	6	6	182
SD3310	57.8	26.6	29	4	3	11	19	67	77	13.0	1.39	54	61.5	12.6	0.37	56.2	2	58.3	2.5	2	4	5	4	177
SD3345	57.6	26.7	19	7	0	2	2	96	112	14.3	1.47	78	63.7	13.8	0.48	57.6	3	59.9	2.8	2	3	6	6	183
SD3348	55.3	27.8	26	9	2	6	9	83	94	13.4	1.60	53	64.2	12.7	0.35	53.8	2	57.3	3.3	2	3	3	4	162
SD3497	57.0	26.8	17	12	1	3	7	89	100	12.7	1.45	66	60.6	11.8	0.40	55.0	3	56.2	3.3	2	3	6	5	162
SD3414	59.4	26.4	13	13	2	5	4	89	102	12.9	1.42	83	63.1	12.6	0.37	55.5	3	56.8	3.0	2	3	6	5	166
MN95002	57.6	27.3	18	5	1	0	4	95	107	13.9	1.48	66	59.5	13.7	0.42	52.9	1	57.5	3.0	2	3	5	4	178
MN95229	58.0	30.7	39	4	3	4	7	86	95	13.0	1.42	72	59.1	12.8	0.39	53.8	2	55.6	2.5	2	5	5	5	170
ND709-9	59.0	32.1	64	5	4	11	15	70	82	12.9	1.44	54	61.7	12.7	0.42	52.9	2	57.5	3.3	2	6	6	4	166
ND716	58.4	28.7	40	6	1	3	7	89	94	13.8	1.47	84	63.1	13.5	0.42	56.5	3	58.3	3.0	2	3	5	5	177
ND721	58.6	29.1	38	4	2	4	16	78	80	13.9	1.48	78	64.8	13.0	0.38	55.0	3	56.8	2.8	2	3	3	4	180
ND724	55.0	24.1	10	16	1	2	6	91	98	15.2	1.55	85	63.6	15.0	0.44	56.5	3	58.3	3.0	3	5	5	6	198
ND726	58.8	24.3	8	15	0	2	4	94	108	14.5	1.56	83	59.7	13.7	0.48	57.6	5	60.5	2.5	2	4	3	5	177
N96-0144	56.3	27.4	18	7	1	1	4	94	108	13.4	1.36	78	63.4	13.3	0.41	60.5	7	60.5	3.8	2	4	5	6	162
N96-0060	55.8	24.9	17	12	1	3	12	84	90	12.9	1.50	77	62.9	12.1	0.37	56.2	4	58.3	4.0	2	1	6	5	151
N96-0111	56.2	28.4	41	5	2	3	11	84	87	13.0	1.61	82	64.0	12.4	0.40	55.0	3	60.8	4.0	2	4	5	5	169
N96-0123	55.8	25.8	32	7	2	2	8	88	95	13.7	1.55	86	64.8	13.5	0.40	53.5	3	57.9	4.0	2	4	5	6	158
WA007824	55.5	29.9	35	7	2	11	19	68	77	13.3	1.42	57	61.9	13.0	0.33	56.5	3	58.3	3.5	2	3	6	5	183
WA007839	56.6	30.1	46	5	5	13	30	52	69	14.4	1.45	63	59.9	14.0	0.38	56.5	2	58.3	3.0	2	5	3	5	181
ID0523	54.9	25.6	26	12	1	2	12	85	88	12.6	1.49	65	60.5	12.0	0.41	53.2	2	55.6	3.5	2	3	6	5	176
ID0533	56.1	25.7	21	8	5	4	13	78	81	13.5	1.56	54	57.5	13.0	0.39	53.5	2	55.2	3.5	2	5	3	5	158
98T311	55.8	26.2	31	10	1	3	6	90	95	14.3	1.50	62	57.8	13.6	0.36	52.6	1	58.3	3.0	2	3	3	6	162
98T379	54.8	24.1	9	20	1	3	5	91	102	14.3	1.58	77	59.5	13.4	0.40	55.8	2	59.9	3.5	2	3	3	6	169
FA997-703	57.9	28.4	8	8	2	3	10	85	102	14.3	1.39	77	57.1	13.5	0.36	56.2	2	58.3	2.0	2	6	5	6	168
BW748	57.0	25.6	21	7	2	3	12	83	85	14.4	1.40	64	62.9	14.2	0.35	55.8	4	57.6	3.5	3	3	6	6	182
BW252	58.2	31.7	60	4	4	9	21	66	78	12.5	1.42	64	63.4	12.0	0.37	52.6	2	56.4	3.0	2	5	6	6	163

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

USDA/ARS Wheat Quality Laboratory, Fargo, ND
HRS Wheat Uniform Regional Nursery - 1999 Crop

Hettinger, ND

Variety	TW lb/bu	KWT gm	LG %	SM	SKCS				Wheat				Flour				MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics			Loaf Vol (cc)	
					A B C D				Pro	Ash 14% mb	NIR Hard	Flour Ext (%)	Pro	Ash 14% mb	Mix Abs (%)	DC				CC	CG	CT		
					A	B	C	D																
MARQUIS	60.4	29.1	52	3	0	1	13	86	83	14.1	1.89	72	58.4	13.3	0.44	56.2	2	56.2	2.5	2	3	3	5	177
CHRIS	60.6	27.6	50	6	1	2	8	89	91	14.6	1.91	79	61.4	14.0	0.42	55.3	1	58.3	2.5	3	3	5	6	185
2375	61.0	34.6	58	3	0	5	17	78	80	14.5	1.62	79	63.1	13.7	0.41	58.2	2	59.1	2.3	2	3	3	6	196
VERDE	59.7	29.2	60	4	0	4	12	84	85	14.6	1.63	80	63.9	13.3	0.44	57.3	2	59.5	2.3	2	3	6	6	197
KEENE	62.6	30.0	47	5	2	1	10	87	91	15.5	1.55	86	62.4	14.7	0.41	59.0	2	60.4	2.0	2	5	3	5	192
SD8119	60.8	32.5	81	2	2	3	11	84	84	14.7	1.56	78	61.6	13.9	0.45	55.0	1	56.6	2.3	2	4	6	5	186
SD3310	61.9	33.5	61	3	3	19	26	52	67	15.4	1.58	66	62.5	15.2	0.35	57.6	2	59.1	2.0	2	4	6	5	200
SD3345	63.2	32.4	73	3	0	1	10	89	90	15.2	1.65	85	62.0	14.5	0.39	60.0	2	61.5	2.0	2	4	3	5	190
SD3348	61.9	33.3	74	3	1	9	27	63	72	13.7	1.64	60	63.4	13.0	0.32	57.9	2	59.5	2.8	2	3	6	6	180
SD3407	62.1	36.4	79	2	0	6	21	73	79	13.6	1.64	69	59.6	12.3	0.36	56.2	2	58.3	2.5	2	3	6	6	176
SD3414	63.0	28.9	42	5	1	0	10	89	91	13.8	1.52	79	62.3	12.7	0.38	56.5	2	58.3	2.5	2	3	5	6	167
MN95002	62.2	30.9	58	3	3	6	12	79	87	14.9	1.56	69	60.2	14.7	0.35	55.0	1	56.6	2.5	2	3	6	5	179
MN95229	62.0	32.3	68	3	1	3	7	89	93	14.3	1.71	81	60.3	13.5	0.40	56.5	1	59.9	2.3	2	3	3	5	182
ND709-9	62.1	35.5	81	2	0	4	19	77	80	14.1	1.58	57	63.3	13.9	0.38	57.6	2	59.1	2.8	2	3	6	5	190
ND716	63.4	31.8	73	2	1	1	5	93	90	14.5	1.77	78	61.9	13.5	0.41	56.5	2	59.1	2.5	2	3	6	4	181
ND721	63.2	33.2	79	1	1	0	3	96	95	15.0	1.75	91	67.0	14.5	0.42	57.3	2	58.8	2.0	2	3	6	6	182
ND724	61.4	36.1	81	1	3	5	21	71	82	14.7	1.63	96	68.1	13.8	0.41	55.8	2	57.4	2.3	2	3	5	6	170
ND726	64.1	33.6	65	3	1	3	8	88	87	14.5	1.72	85	65.9	13.5	0.44	55.5	2	58.8	2.8	2	3	6	6	177
N96-0144	62.2	33.6	60	3	0	1	12	87	90	13.2	1.56	89	66.4	12.0	0.45	56.5	2	58.5	3.0	2	1	3	5	177
N96-0060	60.4	27.6	54	5	0	1	2	97	102	12.9	1.81	81	65.9	11.6	0.43	54.3	2	57.9	3.5	2	4	6	6	162
N96-0111	60.9	31.7	67	3	0	2	11	87	88	12.8	1.71	80	65.6	12.0	0.43	54.6	2	58.7	3.0	2	3	3	5	170
N96-0123	62.3	30.5	68	3	0	1	10	89	87	13.0	1.76	78	66.8	12.5	0.42	54.3	2	56.2	3.5	2	4	6	4	161
WA007824	59.7	35.2	67	3	3	8	20	69	76	13.5	1.62	64	60.9	13.1	0.41	53.5	2	57.1	3.0	2	3	4	5	190
WA007839	60.4	34.1	73	2	1	5	24	70	77	14.0	1.69	61	59.1	13.4	0.40	51.9	1	54.7	2.5	1	5	6	5	190
ID0523	58.6	26.9	39	8	0	1	2	97	98	13.1	1.83	74	60.6	12.4	0.44	55.3	2	57.9	3.0	2	3	3	5	179
ID0533	59.1	29.4	48	5	2	2	7	89	93	14.2	1.67	63	60.5	13.3	0.43	54.6	2	58.5	2.5	2	5	3	5	177
98T311	59.3	28.4	49	5	1	1	2	96	99	14.7	1.56	68	61.4	13.9	0.40	51.9	1	56.2	3.0	1	3	3	4	174
98T379	58.6	27.4	19	10	0	1	3	96	103	14.9	1.69	90	61.1	13.9	0.48	56.5	2	59.3	3.0	2	3	5	5	183
FA997-703	60.5	29.3	28	6	0	2	5	93	95	15.4	1.83	84	62.3	14.4	0.41	56.5	1	60.2	2.0	1	3	3	5	178
BW748	57.2	26.2	26	10	2	3	6	89	91	16.8	1.82	81	61.9	16.2	0.41	61.1	4	62.4	2.5	3	2	3	6	230
BW252	61.4	36.4	81	3	0	4	22	74	79	13.8	1.75	79	63.6	13.1	0.42	57.3	2	58.5	3.0	2	3	3	6	190

SKCS - Single Kernel Characterization System:

A = % soft
B = % semi-soft
C = % semi-hard
D = % hard
HI = Hardness index

Bread Characteristics:
DC: dough characteristics
CC: crumb color
CG: crumb grain
CT: crumb texture

USDA/ARS Wheat Quality Laboratory, Fargo, ND
HRS Wheat Uniform Regional Nursery - 1999 Crop

Pullman, WA

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS				Wheat			Flour			MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics			Loaf Vol (cc)		
					SM				Pro	Ash	NIR	Flour Ext (%)	Pro	Ash				DC	CC	CG		CT	
					A	B	C	D															Hl
MARQUIS	60.6	29.4	86	1	0	2	5	93	101	15.0	1.43	99	60.1	14.2	0.33	3	60.2	2.0	3	3	6	185	
CHRIS	59.7	26.7	37	6	1	1	6	92	103	14.8	1.39	75	60.1	14.4	0.32	2	58.4	2.8	2	3	3	6	180
2375	62.2	33.5	69	1	0	1	8	91	95	13.3	1.20	71	62.0	12.7	0.34	2	56.5	3.0	2	3	6	4	164
VERDE	60.5	29.4	57	2	1	1	8	90	103	13.8	1.39	77	63.7	12.7	0.31	2	59.3	3.3	2	3	6	4	168
KEENE	61.8	27.6	17	5	1	2	1	96	108	14.3	1.16	65	56.0	13.2	0.28	2	58.4	2.5	2	5	5	5	177
SD8119	61.0	30.0	55	2	0	1	7	92	96	14.3	1.29	77	60.4	13.4	0.33	2	57.9	2.5	2	3	6	6	167
SD3310	62.1	29.7	44	3	2	3	11	84	90	14.5	1.30	56	60.3	14.3	0.29	2	56.5	3.0	2	4	5	5	170
SD3345	63.0	30.4	54	2	1	0	5	94	102	14.7	1.28	68	58.7	13.9	0.31	2	59.7	2.3	2	4	3	6	165
SD3348	60.5	28.0	29	5	1	2	6	91	105	13.5	1.22	60	60.7	13.2	0.28	1	55.2	3.3	2	4	6	4	170
SD3407	62.9	34.7	74	1	1	2	6	91	102	12.7	1.14	69	58.2	11.4	0.27	1	56.5	4.0	2	3	6	5	153
SD3414	62.8	29.2	23	4	2	2	4	92	107	13.7	1.21	82	61.9	12.4	0.31	2	56.5	3.0	2	4	6	5	156
MN95002	62.9	30.0	27	4	2	3	6	89	103	14.0	1.23	66	58.9	13.1	0.28	2	55.2	2.0	2	4	3	4	157
MN95229	63.5	33.6	57	2	2	1	7	90	91	14.2	1.31	62	55.6	13.4	0.30	3	60.2	2.0	2	3	3	4	162
ND709-9	62.6	34.4	57	2	0	2	13	85	90	14.3	1.31	67	61.1	13.7	0.31	4	60.2	3.0	2	5	3	5	173
ND716	60.6	30.5	54	1	1	3	4	92	96	14.5	1.31	75	59.0	13.8	0.32	4	61.1	3.0	2	3	6	5	192
ND721	61.8	30.0	34	2	0	2	3	95	99	15.5	1.30	91	61.0	14.5	0.35	3	60.6	2.5	2	3	3	6	188
ND724	59.8	28.9	47	3	1	1	4	94	98	15.7	1.39	86	59.9	15.2	0.33	4	60.2	2.3	2	3	5	6	190
ND726	63.4	29.3	32	4	3	2	4	91	105	14.9	1.33	84	57.2	14.1	0.34	3	59.7	2.5	2	3	3	6	172
N96-0144	62.2	31.5	42	2	1	1	5	93	102	13.2	1.26	78	61.4	12.4	0.32	3	57.8	5.5	2	4	6	6	158
N96-0060	60.9	29.0	37	5	0	2	4	94	103	13.0	1.29	85	60.7	11.7	0.33	2	57.9	4.5	2	4	4	5	152
N96-0111	61.4	30.7	53	2	2	4	3	91	102	13.2	1.25	82	61.2	12.7	0.31	2	58.8	3.3	2	4	5	5	155
N96-0123	61.8	29.1	48	2	1	2	4	93	100	13.7	1.42	94	61.6	12.6	0.33	2	57.9	3.8	2	4	3	4	152
WA007824	60.3	34.9	47	8	1	4	10	85	95	13.7	1.35	58	54.7	12.8	0.29	2	57.3	4.5	2	3	5	4	171
WA007839	60.6	33.0	56	1	1	6	18	75	85	14.0	1.41	58	54.4	13.8	0.29	3	58.4	2.5	3	3	3	5	172
ID0523	59.1	28.0	39	9	1	1	3	95	102	12.7	1.35	57	59.0	11.7	0.32	3	59.6	3.5	2	5	6	6	170
ID0533	61.8	34.4	57	3	3	3	13	81	86	13.1	1.38	50	56.3	11.7	0.30	2	58.4	3.5	2	3	4	5	163
98T311	60.2	28.2	33	5	1	2	1	96	110	14.3	1.31	63	57.7	13.8	0.31	1	58.8	2.5	2	3	6	5	170
98TT379	61.7	28.9	15	8	0	1	2	97	111	13.5	1.28	88	58.9	12.5	0.32	2	58.4	3.0	2	3	3	6	158
FAA997-703	62.2	31.6	38	2	2	2	5	91	96	14.5	1.18	73	58.8	13.9	0.31	2	61.5	2.0	3	3	4	6	168
BW748	61.3	28.8	39	2	1	2	5	92	97	14.5	1.25	72	59.3	14.4	0.31	3	59.6	3.3	3	3	5	6	180
BW252	61.4	34.1	72	2	2	2	12	84	90	14.1	1.35	75	61.6	13.6	0.31	3	58.8	2.5	3	3	5	5	180

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

USDA/ARS Wheat Quality Laboratory, Fargo, ND
HRS Wheat Uniform Regional Nursery - 1999 Crop

Powell, WY

Variety	TW lb/bu	KWT gm	LG %	SM %	SKCS				Wheat			Flour			MIX Pat	Bake Abs (%)	Mix Time	Bread Characteristics			Loaf Vol(cc)			
					A B C D				Pro 14% mb	Ash	NIR Hard	Flour Ext (%)	Pro 14% mb	Ash				Mix Abs (%)	DC	CC		CG	CT	
					A	B	C	D																
MARQUIS	62.8	35.4	87	1	1	1	17	81	84	12.9	1.80	77	59.6	11.6	0.41	55.0	1	57.9	2.0	1	3	5	6	156
CHRIS	63.0	33.8	81	0	2	2	11	85	92	12.0	1.79	86	61.6	11.7	0.44	54.3	1	57.4	2.0	2	5	3	6	162
2375	63.8	43.5	94	0	5	18	33	44	64	12.3	1.66	60	61.2	11.6	0.38	54.3	1	56.2	2.0	2	5	3	5	169
VERDE	62.9	36.4	82	1	1	9	21	69	78	12.0	1.68	74	65.1	11.4	0.39	56.5	1	58.3	2.0	2	5	5	4	163
KEENE	64.5	35.3	81	2	1	2	8	89	88	12.2	1.61	80	62.1	10.6	0.36	56.2	1	59.6	2.3	2	5	3	4	155
SD8119	63.2	39.6	92	1	1	9	20	70	77	11.2	1.69	86	61.9	9.8	0.39	54.3	1	57.9	2.0	2	4	5	4	151
SD3310	64.3	38.7	94	1	3	11	27	59	74	11.4	1.68	65	62.1	10.8	0.33	55.0	1	57.1	2.0	2	4	6	5	160
SD3345	64.6	38.2	95	0	0	1	14	85	89	12.3	1.72	88	59.4	11.3	0.37	55.3	1	60.0	2.0	1	4	6	5	147
SD3348	63.3	39.0	90	1	1	9	19	71	82	11.5	1.73	68	62.2	10.8	0.34	55.0	2	58.3	3.5	1	3	5	6	148
SD3407	64.1	41.4	94	1	1	7	26	66	79	11.1	1.63	84	60.0	9.4	0.37	55.0	2	61.2	2.5	2	3	6	6	156
SD3414	64.5	35.6	77	1	1	6	15	78	85	10.8	1.77	94	62.9	10.2	0.39	56.5	2	59.6	3.3	1	5	6	5	142
MN95002	63.9	37.9	92	0	2	9	21	68	81	13.1	1.89	75	60.6	12.7	0.38	56.9	1	59.3	2.0	2	3	6	6	173
MN95229	64.2	41.8	94	1	4	6	28	62	74	12.7	1.92	77	59.4	12.0	0.42	59.3	2	61.9	2.0	2	6	6	6	174
ND709-9	60.6	32.8	68	5	2	7	17	74	87	13.0	1.73	75	60.9	12.5	0.43	55.8	2	60.2	3.0	3	5	5	6	176
ND716	62.9	32.6	63	5	1	2	11	86	93	13.5	1.75	69	60.3	13.0	0.45	57.3	2	61.4	2.0	3	3	6	6	192
ND721	64.3	38.3	95	0	1	1	12	86	83	14.5	1.75	94	63.1	13.9	0.38	58.6	1	60.2	2.0	2	5	6	5	183
ND724	62.5	37.6	89	1	0	4	15	81	91	15.1	1.60	90	62.8	14.8	0.36	57.3	1	60.8	2.0	3	3	4	6	210
ND726	65.2	35.6	90	0	1	1	8	90	86	14.0	1.81	90	63.3	13.2	0.40	57.3	1	61.4	2.0	2	3	3	6	187
N96-0144	63.0	39.1	89	1	1	2	16	81	87	14.5	1.70	69	61.7	13.1	0.41	58.2	2	59.7	2.3	3	3	5	6	190
N96-0060	63.6	39.1	94	1	1	5	15	79	87	11.3	1.63	77	61.1	10.4	0.39	52.9	1	57.0	2.5	2	4	6	5	153
N96-0111	63.5	39.6	94	0	1	9	17	73	77	12.1	1.67	89	63.4	11.6	0.37	53.2	1	55.9	2.8	2	4	6	5	170
N96-0123	63.8	35.8	87	1	1	4	13	82	83	13.1	1.82	80	65.3	12.2	0.40	56.2	2	60.3	3.0	2	4	4	6	166
WA007824	61.9	44.6	83	2	12	21	23	44	62	12.1	1.64	70	56.3	11.7	0.38	51.6	1	57.4	3.0	2	4	6	5	171
WA007839	63.6	46.6	96	0	3	17	31	49	65	12.8	1.71	67	56.0	12.1	0.35	55.5	1	58.6	2.0	2	4	3	6	185
ID0523	59.7	27.1	45	8	1	1	2	96	97	11.2	1.69	74	54.9	10.2	0.44	54.3	1	60.3	2.8	1	3	5	5	159
ID0533	65.2	47.8	97	0	4	14	32	50	68	11.1	1.59	72	55.6	10.2	0.38	52.9	1	58.4	2.5	1	5	3	5	148
98T311	62.8	40.1	91	0	4	4	17	75	78	12.4	1.69	68	58.4	11.8	0.36	53.5	1	57.9	2.3	1	3	5	5	169
98T379	64.7	40.4	92	0	2	3	14	81	84	11.5	1.60	84	61.1	10.6	0.38	55.5	1	59.2	2.3	1	3	3	5	152
FA997-703	64.2	40.0	89	1	0	4	19	77	84	13.1	1.66	68	59.8	11.9	0.38	55.5	1	59.2	1.8	1	3	3	4	152
BW252	63.8	43.0	95	0	1	14	30	55	77	11.5	1.71	82	62.0	10.7	0.41	55.3	1	58.4	2.0	2	3	5	6	165

SKCS - Single Kernel Characterization System:

A = % soft

B = % semi-soft

C = % semi-hard

D = % hard

HI = Hardness Index

Bread Characteristics:

DC: dough characteristics

CC: crumb color

CG: crumb grain

CT: crumb texture

Ent No.	Name	Pedigree/CI No	Source	Year
1.	MARQUIS	3651	CAN	1929
2.	CHRIS	13751	MN	1969
3.	2375	Olaf/Era/Suqamuxi68/3/Cis/ND487//Lark	NDRF	1998
4.	VERDE	MN7663/SBY35A	MN	1998
5.	KEENE	Stoa's'3//IAS20*4//H567.71//Amidon	ND	1998
6.	SD8119	SD8072/SD3105	SD	1997
7.	SD3310	SD8072/SD3067	SD	1997
8.	SD3345	SD3116/BT86/SD8061	SD	1998
9.	SD3348	SD3116/OXEN	SD	1998
10.	SD3407	Composite	SD	1999
11.	SD3414	Composite	SD	1999
12.	MN95002	2375/SBF0670	MN	1998
13.	MN95229	SBF0068	MN	1999
14.	ND709-9	ND2709/3/GRANDIN*3//RAMSEY/ND622	ND	1999
15.	ND716	ND674//ND2710/ND688	ND	1999
16.	ND721	GRANDIN/3//IAS20*4/H567.71//AMIDON/4/ND674	ND	1999
17.	ND724	KITT/AMIDON//GRANDIN/STOA'S'	ND	1999
18.	ND726	SD8070/ND674	ND	1999
19.	N96-0144	KARL/KRONA//N90-0669	Agripro	1999
20.	N96-0060	N91-0054/DALEN	Agripro	1999
21.	N96-0111	HAMER/N90-0669	Agripro	1999
22.	N96-0123	HAMER/N90-0669	Agripro	1999
23.	WA007824	KODIAK/SPILLMAN//WPB00926	WA	1998
24.	WA007839	ORS08418/WPB00906/K80003/WA006711	WA	1999
25.	ID0523	SPWE11/ID0377	ID	1999
26.	ID0533	OASIS/ID0377	ID	1999
27.	98T311	ProBrand 822/Norm-15m	Trigen	1999
28.	98T379	SWM1696Ka/KLCbr's'//H1255b	Trigen	1999
29.	FA 997-703	Pioneer2375/Sumai3//Pioneer2375	WPB	1999
30.	BW748	L8509-N5A/Columbus//ND640	SASK	1999
31.	BW252		MANT	1999

Section IV

Advanced Yield Trials – Minnesota

– 1998 Crop

LOCATION/NURSERY	PAGE #
North, AY1	1
South, AY1	2
Crookston, AY2	3
Morris, AY2	4
St. Paul, AY2	5
Crookston, AY3	6
Morris, AY3	7
St. Paul, AY3	8
Crookston, AY4	9
Morris, AY4	10
St. Paul, AY4	11
Crookston, AY5	12
Morris, AY5	13
St. Paul, AY5	14
Crookston, AY6	15
Morris, AY6	16
St. Paul, AY6	17

USDA/ARS Wheat Quality Laboratory

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: North
Nursery: AY1

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)			Flour			Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)
					A	B	C	D	HI	Prot	Ash	Ext (%)	Prot	Ash	Ext (%)	Prot	Ash					D	C	G	C	T
CHRIS	59.9	26.8	51	5	0	3	17	80	72	76	15.0	1.56	62.3	14.6	0.41	59.0	3	56.8	2.25	3	3	4	5	202		
MARSHALL	59.1	28.0	41	8	3	6	17	74	70	56	14.0	1.76	64.7	12.6	0.45	55.5	2	57.5	2.75	3	4	5	4	182		
SHARPSHOOTER	62.6	33.4	40	3	2	12	23	63	63	59	14.6	1.60	63.6	13.8	0.39	56.2	2	58.0	2.50	3	4	5	4	198		
NORM	58.2	30.5	40	3	1	5	12	82	72	50	13.5	1.68	61.7	12.4	0.46	56.5	2	61.0	3.50	3	3	5	4	195		
VERDE	59.4	30.4	63	2	1	6	19	74	70	58	14.2	1.65	64.7	12.3	0.41	55.3	2	55.0	3.00	3	3	3	5	191		
BACUP	62.2	29.0	26	5	2	7	24	67	66	63	17.3	1.74	58.9	15.6	0.39	57.3	3	60.5	2.50	3	4	5	5	190		
GRANDIN	60.5	30.6	56	7	2	2	9	87	76	68	14.9	1.69	64.4	13.9	0.42	55.3	2	57.0	3.00	3	4	3	5	202		
KULM	60.9	29.8	62	4	1	3	14	82	73	62	15.3	1.71	60.3	14.4	0.41	58.2	3	60.8	2.50	3	3	3	5	193		
TRENTON	60.6	29.1	48	3	2	3	7	88	75	59	15.2	1.66	59.9	13.5	0.38	57.6	3	59.5	2.50	3	3	3	5	194		
KEENE	60.3	33.8	72	2	1	3	15	81	72	73	14.4	1.64	60.9	13.8	0.40	57.6	3	59.5	3.50	3	4	3	5	198		
2375	60.1	32.4	64	4	0	2	8	90	75	60	13.6	1.62	63.5	12.3	0.41	57.3	3	60.5	2.75	2	3	3	5	190		
ND690	60.7	33.4	81	2	0	2	10	88	73	68	15.0	1.70	65.1	13.9	0.42	56.5	3	58.5	3.00	3	3	5	5	190		
ND694	62.2	31.4	74	2	1	2	11	86	72	66	15.3	1.56	61.2	14.3	0.38	57.3	3	61.0	2.75	3	3	5	3	222		
SHARP	62.2	34.2	76	2	2	6	27	65	64	50	14.5	1.67	59.9	13.2	0.35	57.3	3	59.0	2.50	3	3	3	4	185		
OXEN	59.5	30.6	66	4	0	1	11	88	75	63	14.5	1.64	62.7	12.7	0.37	59.0	4	59.0	3.25	3	3	3	4	202		
FORGE	61.3	32.2	73	4	1	4	13	82	72	61	14.3	1.53	58.5	13.0	0.36	57.6	3	57.5	2.50	3	3	5	6	210		
INGOT	62.6	32.3	73	4	1	6	21	72	68	63	14.9	1.63	60.7	13.9	0.36	59.3	3	59.0	2.75	3	5	4	6	208		
RUSS	59.1	29.1	62	6	0	1	4	95	82	54	14.3	1.66	59.2	13.0	0.43	58.6	3	62.5	4.00	3	4	6	6	192		
LARS	57.6	29.3	67	5	0	3	9	88	76	58	13.7	1.76	62.1	12.5	0.45	55.5	2	61.5	4.00	3	4	5	5	200		
HAMER	60.5	32.8	82	2	10	21	32	37	54	70	13.9	1.65	62.6	13.0	0.44	57.3	3	59.0	3.00	3	4	5	5	205		
GUNNER	61.8	30.0	69	3	0	0	7	93	77	66	15.3	1.79	61.1	13.9	0.43	57.3	2	63.0	3.00	3	3	3	6	211		
NORA	58.8	30.4	51	6	1	3	7	89	75	52	15.0	2.02	58.0	14.4	0.51	56.9	2	62.8	3.25	3	4	5	6	200		
HAGER	58.9	30.7	66	3	1	5	12	82	72	48	14.6	1.75	59.2	13.5	0.42	58.2	3	60.5	3.25	3	3	3	5	209		
IVAN	59.4	29.8	76	3	1	5	18	76	69	53	13.0	1.72	62.8	11.9	0.40	53.2	2	57.0	3.00	3	3	3	4	185		
HJ98	59.4	29.2	44	6	2	1	9	88	76	48	13.6	1.70	58.2	12.2	0.44	56.5	3	59.5	3.75	3	3	3	4	198		
MN93413	57.8	31.5	57	5	1	1	9	89	74	64	13.2	1.64	59.4	11.7	0.40	54.3	2	57.5	3.25	2	4	3	5	190		
MN94055	60.3	32.8	68	3	3	5	23	69	66	48	13.5	1.77	57.9	12.4	0.40	52.6	1	54.8	3.00	2	1	3	4	167		
MN94200	59.7	27.6	57	4	0	1	3	96	85	64	13.4	1.64	60.4	11.7	0.44	56.5	2	58.5	3.25	3	3	3	4	190		
MN95002	62.4	31.8	66	4	0	9	22	69	68	56	14.8	1.62	59.0	13.6	0.38	58.2	2	60.5	2.50	3	4	3	5	200		
MN95229	61.3	31.5	67	3	0	2	15	83	72	62	14.6	1.65	63.0	13.4	0.40	58.2	3	60.5	2.50	3	3	3	5	180		
MERCURY	58.7	32.0	72	2	1	5	19	75	70	61	14.3	1.72	62.0	12.8	0.42	58.2	3	58.5	2.75	3	3	6	4	205		
AC BARRIE	59.4	29.9	49	5	3	3	13	81	68	71	14.9	1.61	64.9	13.9	0.40	56.9	4	58.8	3.00	3	5	3	4	208		
AC MAJESTIC	59.0	27.5	52	8	1	3	9	87	74	64	14.6	1.63	62.9	13.5	0.40	56.5	3	61.5	3.25	3	3	3	5	210		
AC DOMAIN	60.0	31.0	70	3	1	2	12	85	73	63	15.4	1.69	64.4	14.4	0.39	57.3	3	63.0	2.75	3	4	3	5	182		
AC CORA	60.0	31.0	62	3	1	6	19	74	68	64	15.3	1.79	63.6	14.3	0.42	52.9	2	60.8	3.00	3	3	3	5	208		
AC VISTA	59.1	29.0	39	10	8	16	30	46	56	46	12.5	1.54	60.7	11.4	0.44	54.6	2	58.8	3.00	2	4	3	4	170		

USDA/ARS Wheat Quality Laboratory

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: South
Nursery: AY1

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Time	Rating Scores				Loaf Vol (cc)
					A	B	C	D		HI	Prot		Ash	Prot					Ash	D	C	C	
CHRIS	57.0	28.1	61	4	2	5	16	77	69	62	15.7	1.76	13.7	0.40	53.2	2	56.5	2.75	3	3	3	4	202
MARSHALL	54.7	25.9	40	8	2	6	13	79	70	56	14.8	1.82	13.6	0.43	52.2	2	56.5	3.25	3	3	3	5	202
SHARPSHOOTER	60.6	32.3	72	2	1	4	23	72	66	55	14.8	1.52	13.3	0.36	55.3	2	57.0	2.75	3	5	3	5	195
NORM	56.2	31.6	67	3	2	4	13	81	69	63	14.7	1.81	12.8	0.41	56.5	3	62.5	3.50	3	5	5	5	201
VERDE	58.3	32.0	78	1	0	2	16	82	70	71	14.2	1.56	11.8	0.36	52.2	2	54.5	3.00	3	3	5	4	183
BACUP	60.6	30.0	46	4	3	6	18	73	66	56	16.7	1.87	15.7	0.40	57.9	3	60.8	3.00	3	3	3	5	218
GRADIN	57.4	32.6	56	2	1	3	12	84	72	57	15.6	1.77	14.0	0.43	55.5	4	59.5	3.50	3	3	3	5	211
KULM	60.3	33.0	79	1	2	3	23	72	65	64	15.4	2.09	13.9	0.33	56.9	3	58.8	3.00	3	5	3	5	217
TRENTON	59.1	29.3	56	3	1	1	5	93	79	67	15.2	1.74	13.3	0.40	54.3	2	60.5	3.00	3	3	4	5	202
KEENE	58.3	34.3	76	1	1	1	6	92	74	67	15.0	1.64	13.5	0.41	54.3	3	62.5	4.25	3	5	3	4	205
2375	58.1	34.2	67	2	1	3	19	77	68	67	14.6	1.72	13.1	0.41	53.5	2	59.5	3.50	3	3	2	5	211
ND690	58.6	34.9	83	1	0	4	12	84	70	75	15.7	1.64	13.9	0.38	55.3	3	60.0	3.25	3	5	5	5	221
ND694	60.3	30.2	74	1	1	1	5	93	76	56	15.6	1.63	13.8	0.36	55.3	3	59.0	3.00	3	3	2	6	195
SHARP	60.2	32.7	76	1	2	8	18	72	65	63	14.7	1.59	13.5	0.31	55.5	2	57.5	2.75	3	3	5	5	182
OXEN	58.4	33.5	82	1	0	3	15	82	69	79	15.0	1.60	13.0	0.32	55.3	3	61.0	3.50	3	5	4	5	208
FORGE	56.9	31.1	52	6	4	9	17	70	65	57	15.1	1.82	13.3	0.35	58.2	4	60.5	3.25	3	3	3	6	214
INGOT	60.3	32.5	70	3	1	4	20	75	66	59	15.3	1.69	13.5	0.35	57.3	4	59.0	3.25	3	4	3	6	210
RUSS	58.2	33.6	79	1	0	1	8	91	75	83	15.3	1.80	13.6	0.41	58.2	4	62.5	3.00	3	4	6	5	192
LARS	57.0	30.3	74	3	1	1	11	87	74	69	14.3	1.74	12.6	0.42	52.6	3	59.5	4.25	3	4	3	5	188
HAMER	58.7	34.1	80	1	2	3	24	71	66	67	15.0	1.75	13.0	0.43	56.5	3	60.5	3.25	3	3	5	5	208
GUNNER	58.2	25.4	50	8	1	1	3	95	82	68	16.2	1.92	14.4	0.46	56.9	3	60.0	3.25	3	3	3	5	214
NORA	56.2	30.6	40	5	1	2	8	89	77	58	16.1	1.98	15.1	0.50	57.3	3	61.0	4.00	4	3	4	5	200
HAGER	56.7	29.7	66	3	2	5	13	80	70	53	15.4	1.71	14.0	0.41	56.9	4	62.8	3.75	3	1	3	5	225
IVAN	57.6	29.2	58	5	0	3	17	80	70	59	13.9	1.86	11.8	0.39	49.2	1	53.0	4.25	3	3	5	5	170
HJ98	55.4	27.1	38	9	2	3	11	84	72	53	15.2	1.96	13.5	0.46	56.9	3	60.8	3.50	3	3	3	5	210
MN93413	54.7	29.4	48	8	1	2	12	85	73	65	14.4	1.86	12.5	0.47	53.2	2	55.0	3.25	3	3	3	5	190
MN94055	57.9	31.9	62	4	3	9	29	59	63	48	14.3	1.88	12.9	0.40	51.6	1	55.5	3.00	2	4	5	5	182
MN94200	54.9	26.1	43	11	3	2	9	86	78	66	14.9	1.79	12.8	0.46	54.6	2	62.8	3.75	3	3	3	5	202
MN95002	60.0	32.3	78	1	2	9	30	59	63	56	15.5	1.68	14.0	0.36	53.2	1	58.5	3.00	3	3	3	5	204
MN95229	59.4	30.6	64	2	1	4	14	81	71	71	15.1	1.79	13.5	0.41	55.8	2	62.0	3.25	3	3	5	5	190
MERCURY	57.4	33.3	73	2	0	6	21	73	67	62	14.8	1.70	13.3	0.41	55.5	3	60.5	3.25	3	3	3	5	211
AC BARRIE	57.8	31.0	62	3	1	5	17	77	67	66	15.9	2.17	14.2	0.59	53.8	3	58.0	3.00	3	3	3	5	208
AC MAJESTIC	55.4	28.2	46	7	2	4	15	79	70	68	16.3	1.85	14.8	0.43	54.6	3	60.0	3.00	3	2	3	5	215
AC DOMAIN	57.6	30.2	70	2	1	2	10	87	73	68	16.6	1.83	14.9	0.42	58.6	3	62.8	2.50	3	3	3	5	193
AC CORA	57.0	29.7	62	3	1	3	13	83	71	68	16.6	1.95	14.8	0.45	53.5	2	57.5	2.50	3	3	5	5	193
AC VISTA	55.5	28.6	63	11	15	26	30	29	50	41	13.6	1.78	12.3	0.41	53.2	2	56.5	3.25	3	3	5	5	189

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Crookston
Nursery: AY2

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Flour (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)	
					SKCS					Prot	Ash		Prot	Ash					D	C	G	T		
					A	B	C	D																HI
BACUP	61.8	31.6	41	2	3	4	23	70	65	53	16.4	2.01	55.1	16.2	0.48	60.5	3	62.5	2.25	3	3	3	5	189
VERDE	59.0	32.4	76	1	1	1	8	90	75	66	13.3	1.67	65.6	11.5	0.39	56.2	2	58.5	3.25	3	4	5	5	190
2375	59.0	33.9	64	1	1	3	10	86	72	63	13.7	1.60	61.7	12.4	0.44	54.3	2	58.5	3.25	3	3	5	5	190
MN97001	58.6	34.8	76	2	0	0	3	97	81	78	13.9	1.71	63.9	12.0	0.41	55.5	2	59.5	3.75	3	3	6	5	192
MN97003	57.9	32.0	60	4	2	5	13	80	70	63	13.9	1.66	60.9	12.8	0.41	53.2	2	59.0	3.00	2	3	3	5	179
MN97004	57.0	29.1	43	9	2	4	16	78	68	34	12.9	1.62	58.7	11.5	0.38	50.8	1	54.8	3.75	3	3	5	4	188
MN97006	57.6	28.8	50	5	1	4	13	82	72	39	12.9	1.65	57.5	11.7	0.38	51.6	1	53.5	3.25	2	3	1	4	175
MN97008	58.2	28.8	50	3	1	2	4	93	81	53	14.9	1.73	59.4	13.3	0.41	58.2	3	60.5	2.75	3	4	5	4	172
MN97009	54.9	27.9	41	10	5	7	13	75	68	56	14.0	1.65	55.2	12.8	0.40	56.2	3	58.5	3.00	3	1	5	4	208
MN97010	56.8	31.0	52	8	2	4	12	82	72	61	13.9	1.68	61.3	12.3	0.46	55.5	2	57.5	3.00	2	1	5	5	173
MN97022	58.0	29.7	58	4	0	1	8	91	78	64	13.4	1.37	59.9	11.9	0.39	56.2	3	60.5	3.75	3	1	5	5	190
MN97039	58.4	29.7	57	6	1	3	8	88	74	48	13.4	1.69	55.0	12.1	0.40	51.6	2	55.5	3.25	3	3	3	4	170
MN97045	60.0	36.2	83	1	1	2	12	85	71	62	12.6	1.67	61.2	11.0	0.39	53.5	3	55.5	3.25	3	3	5	4	178
MN97051	56.2	32.0	59	1	2	8	12	78	69	43	12.2	1.70	56.0	10.7	0.45	49.2	1	55.0	4.25	3	3	5	4	170
MN97060	59.0	28.9	61	5	1	2	5	92	78	45	12.1	1.88	53.6	10.9	0.42	49.2	1	55.0	3.25	3	3	5	4	194
MN97063	60.2	34.4	77	1	1	2	16	81	71	66	13.2	1.55	62.9	11.6	0.38	54.3	3	60.5	4.50	3	5	5	5	200
MN97072	59.5	28.6	45	5	1	3	15	81	73	55	13.8	1.55	55.8	12.8	0.39	52.9	1	56.8	2.75	2	3	5	5	182
MN97073	60.9	32.7	70	2	1	4	14	81	70	59	14.2	1.69	56.3	13.0	0.41	51.6	1	55.5	3.25	3	3	5	5	190
MN97081	58.8	34.2	73	3	1	3	13	83	71	57	13.2	1.80	54.9	11.9	0.43	51.9	1	56.0	3.25	3	3	6	5	192
MN97083	55.8	29.6	59	8	2	2	8	88	77	50	13.1	1.71	57.8	11.4	0.46	54.3	3	58.5	4.50	3	5	6	4	192
MN97084	57.2	29.7	60	5	1	2	9	88	75	49	13.3	1.78	53.3	12.1	0.46	55.5	3	59.5	4.25	3	1	5	5	190
MN97087	58.7	29.9	66	5	2	1	9	88	78	45	12.8	1.66	54.9	11.2	0.45	53.5	2	58.8	4.00	2	1	3	5	200
MN97089	57.6	31.1	64	4	2	3	14	81	71	49	12.9	1.85	58.0	11.9	0.44	51.6	1	55.5	3.00	2	3	3	5	194
MN97091	57.8	33.2	69	3	1	1	9	89	76	45	13.2	1.76	57.3	11.7	0.48	56.2	2	60.5	3.00	2	3	3	5	194
MN97097	60.3	36.2	73	2	3	6	20	71	67	49	12.8	1.75	57.1	11.7	0.43	51.9	1	58.5	2.50	3	2	1	3	160
MN97105	59.8	33.1	74	3	0	2	3	95	83	56	13.8	1.89	56.3	11.7	0.53	52.2	1	58.5	2.25	2	1	1	3	158
MN97118	59.4	35.8	76	2	2	3	17	78	71	52	12.1	1.89	58.7	10.9	0.57	55.0	1	57.0	1.75	2	1	1	3	150
MN97119	60.4	29.6	50	4	20	36	29	15	45	18	12.3	1.67	42.5	11.0	0.38	44.5	1	54.5	2.50	2	1	1	1	148
MN97123	59.2	33.0	74	2	1	2	13	84	72	46	14.0	1.76	55.8	12.9	0.45	51.9	1	60.0	2.75	3	5	6	5	210
MN97126	59.4	29.9	54	3	0	1	3	96	85	70	13.0	1.78	58.9	11.2	0.51	54.3	2	58.5	2.50	2	4	6	5	192
MN97139	58.2	32.3	74	3	1	3	10	86	74	64	13.0	1.70	62.1	11.2	0.43	47.6	1	57.5	3.50	3	4	5	4	168
MN97149	57.0	33.5	74	5	1	2	6	91	80	62	13.5	1.81	53.1	11.7	0.49	52.2	1	58.5	2.50	2	2	3	5	190
MN97156	57.8	32.4	71	6	1	4	13	82	70	56	13.6	1.86	54.4	12.6	0.47	53.2	1	57.0	2.25	2	4	6	4	184
MN97167	59.1	32.3	66	5	1	0	7	92	79	62	13.4	1.82	58.9	11.8	0.46	50.2	2	56.0	5.50	3	3	6	5	180
MN97168	61.3	32.2	80	3	0	0	7	93	78	61	13.7	1.51	55.5	12.4	0.40	59.6	5	63.5	3.50	3	4	5	6	202
MN97172	61.4	30.3	63	5	1	2	7	90	78	46	12.8	1.69	53.7	11.3	0.42	51.9	2	56.0	2.75	2	4	3	4	172

USDA/ARS Wheat Quality Laboratory
Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Morris
Nursery: AY2

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)
					A	B	C	D		Prot	Ash		Prot	Ash					D	C	G	C	
BACUP	60.1	31.0	41	3	1	5	19	75	66	16.5	1.86	51.0	15.7	0.40	57.3	3	61.0	1.75	3	3	3	5	208
VERDE	57.8	32.6	84	2	0	3	12	85	72	13.7	1.75	61.2	11.9	0.36	55.0	2	58.8	2.25	3	3	5	4	185
2375	58.3	34.7	76	2	0	4	26	70	66	14.1	1.62	57.0	12.5	0.36	55.5	3	58.5	3.00	3	3	5	4	192
MN97001	57.6	34.2	78	2	0	1	7	92	76	14.2	1.74	59.9	12.4	0.42	56.9	4	60.8	3.75	3	3	5	4	187
MN97003	57.9	32.6	72	2	1	10	32	57	62	14.1	1.55	58.8	12.8	0.41	55.8	3	58.0	2.50	3	3	5	4	183
MN97004	56.5	30.3	68	2	4	9	32	55	60	12.9	1.45	58.6	11.6	0.33	51.9	2	56.0	3.50	3	3	5	4	180
MN97006	57.5	30.8	71	2	3	11	37	49	60	13.2	1.50	57.5	11.8	0.34	53.2	2	56.5	2.50	3	3	4	4	195
MN97008	58.0	29.4	67	2	0	2	10	88	75	14.6	1.69	56.8	13.3	0.40	57.9	3	62.0	3.25	3	3	3	5	200
MN97009	56.3	31.5	61	4	5	9	34	52	60	14.3	1.76	54.8	13.0	0.37	51.9	3	54.5	3.75	3	5	6	5	198
MN97010	56.4	32.7	70	2	3	5	32	60	63	13.7	1.76	59.6	12.4	0.40	51.9	2	56.0	3.00	3	3	5	5	206
MN97022	56.2	30.3	64	4	1	6	22	71	67	13.4	1.57	58.5	12.2	0.38	54.3	3	57.5	3.50	3	3	6	5	193
MN97039	56.5	31.2	64	3	1	7	20	72	67	13.6	1.77	56.5	12.3	0.40	52.9	3	56.8	3.50	3	5	5	4	180
MN97045	57.2	31.9	75	2	0	8	26	66	66	13.0	1.63	62.5	11.2	0.38	51.9	3	56.0	4.25	3	3	3	4	173
MN97051	53.8	29.1	57	5	3	4	19	74	69	13.1	1.75	52.9	11.4	0.42	48.9	2	56.0	4.75	3	3	3	4	191
MN97060	55.5	26.9	51	8	2	4	15	79	70	13.3	1.92	51.7	12.1	0.41	48.9	2	56.8	3.50	3	4	3	4	200
MN97063	58.4	33.6	76	1	1	4	18	77	68	13.3	1.81	60.7	12.0	0.38	51.9	3	56.0	4.75	3	5	5	5	192
MN97072	57.4	28.9	55	5	7	19	36	38	55	14.1	1.74	56.7	12.9	0.38	57.3	4	59.0	2.50	3	3	3	5	182
MN97073	58.6	32.7	70	3	3	13	35	49	58	14.0	1.72	57.5	13.1	0.41	53.8	3	56.0	3.50	3	3	3	5	208
MN97081	57.4	31.1	67	4	2	6	19	73	66	14.1	1.85	53.4	12.4	0.44	53.8	3	56.0	3.50	3	3	3	5	200
MN97083	55.8	31.5	67	4	1	4	18	77	69	13.4	1.71	57.4	11.8	0.41	54.3	3	57.5	4.75	3	3	6	5	178
MN97084	53.4	26.8	44	9	4	6	22	68	67	12.9	1.63	45.6	13.1	0.45	53.8	3	58.0	4.75	3	1	3	5	196
MN97087	56.2	29.1	61	3	1	7	22	70	68	12.9	1.63	54.3	11.7	0.42	54.3	2	58.5	3.75	3	3	5	5	198
MN97089	55.1	28.2	64	3	6	11	29	54	61	14.0	1.74	53.6	12.5	0.42	53.5	2	55.5	3.25	3	3	3	5	198
MN97091	56.9	34.5	72	3	4	12	27	57	60	14.0	1.75	51.5	12.8	0.43	55.0	2	57.0	3.50	3	3	3	6	183
MN97097	57.6	34.2	64	4	3	8	26	63	64	14.1	1.59	55.0	12.9	0.39	54.6	1	56.5	2.00	3	2	5	5	182
MN97105	56.6	30.9	75	2	0	0	4	96	81	14.2	1.77	55.5	12.7	0.48	55.5	1	59.5	2.25	3	1	6	5	192
MN97118	57.0	34.5	74	2	1	9	28	62	64	13.4	1.71	51.7	11.8	0.38	53.8	1	56.0	2.25	2	4	3	4	170
MN97119	57.8	29.0	69	2	52	22	11	15	34	12.5	1.58	35.6	11.1	0.34	48.2	1	50.5	2.00	1	1	5	1	125
MN97123	55.6	30.8	70	3	2	1	13	84	70	15.1	1.76	50.0	14.0	0.44	55.0	1	57.0	2.00	2	3	5	4	192
MN97126	57.9	29.2	60	4	0	0	5	95	84	13.9	1.49	56.7	12.0	0.44	53.8	2	58.0	2.75	2	4	5	4	190
MN97139	57.2	33.3	75	2	1	5	22	72	67	14.0	1.51	64.3	12.0	0.39	54.3	2	58.5	2.75	2	3	5	5	184
MN97149	56.5	32.3	68	3	1	3	16	80	71	14.2	1.89	50.5	12.3	0.40	55.0	2	57.0	2.25	3	5	5	5	190
MN97156	56.4	31.2	75	2	2	7	27	64	65	14.5	1.56	60.7	13.6	0.40	52.9	1	56.8	2.75	2	3	3	5	194
MN97167	55.4	28.1	56	7	1	1	7	91	79	14.5	1.89	56.6	12.8	0.44	56.5	4	58.5	3.50	3	5	3	5	198
MN97168	57.5	30.7	72	3	1	5	23	71	69	14.3	1.66	56.0	12.8	0.41	59.6	5	63.5	3.50	3	5	3	5	210
MN97172	59.4	30.7	70	3	3	4	24	69	67	13.4	1.81	60.5	11.8	0.39	55.0	3	57.0	3.00	3	3	3	5	180

USDA/ARS Wheat Quality Laboratory

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: St. Paul
Nursery: AY2

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)
					A	B	C	D	Hl	Prot	Ash		Prot	Ash					D	C	C	G	T
BACUP	61.0	31.1	40	4	5	7	24	64	63	17.0	1.99	59.0	16.3	0.42	60.5	4	62.5	2.50	3	3	3	3	5
VERDE	58.9	31.1	76	3	1	5	18	76	67	13.6	1.83	67.0	12.0	0.45	56.2	3	58.5	2.75	3	4	3	5	184
2375	59.9	35.0	69	1	0	3	23	74	68	14.3	1.80	64.3	13.1	0.45	58.2	3	60.5	2.50	3	4	5	6	192
MN97001	57.9	32.0	65	4	0	0	2	98	84	14.2	1.83	62.0	12.6	0.47	59.0	4	62.5	3.50	3	3	5	5	178
MN97003	59.7	32.6	70	2	1	4	25	70	67	14.0	1.96	59.7	12.9	0.43	54.9	3	58.8	2.50	3	3	3	4	186
MN97004	59.7	30.3	70	4	2	6	20	72	66	12.5	1.72	61.8	11.6	0.37	54.6	2	58.8	3.50	3	3	6	4	178
MN97006	62.1	32.3	75	2	1	6	30	63	63	13.5	1.85	59.3	12.3	0.39	55.0	2	57.0	2.75	3	3	3	5	182
MN97008	60.6	31.8	67	2	1	1	8	90	76	14.5	1.84	60.8	13.3	0.44	57.3	3	61.0	3.00	3	5	4	6	200
MN97009	57.4	32.5	56	6	3	12	34	51	60	14.3	1.87	58.3	13.2	0.37	55.3	3	59.0	3.25	3	4	5	5	200
MN97010	58.9	32.9	69	3	0	4	13	83	70	14.1	1.96	62.9	12.3	0.45	53.8	2	56.0	3.00	3	1	3	4	183
MN97022	57.9	29.7	58	2	2	5	11	82	70	13.7	1.73	59.9	12.7	0.41	55.8	3	60.0	3.00	3	1	3	4	192
MN97039	58.7	31.1	67	3	0	4	21	75	68	13.5	2.02	55.9	12.4	0.44	54.6	2	58.8	2.50	3	4	6	4	187
MN97045	57.6	32.9	69	3	0	3	13	84	70	13.4	1.83	56.2	11.9	0.40	52.2	2	56.5	3.50	4	5	3	4	182
MN97051	55.7	31.2	53	7	5	11	27	57	62	12.1	2.00	54.8	10.9	0.44	49.2	2	57.0	4.00	3	3	3	4	162
MN97060	58.7	31.5	66	5	1	3	12	84	71	12.9	1.82	54.6	11.2	0.43	49.9	1	54.0	3.25	3	4	5	4	180
MN97063	58.5	31.7	65	3	1	3	21	75	70	13.8	1.78	58.9	13.1	0.42	55.3	4	59.0	3.50	3	6	2	5	194
MN97072	59.4	30.9	53	5	2	10	36	52	61	13.8	1.84	59.5	12.9	0.40	56.5	2	58.5	2.50	3	4	4	5	188
MN97073	60.9	33.0	71	2	1	7	26	66	64	13.8	1.77	60.2	13.0	0.45	58.2	3	56.5	1.75	3	4	6	5	182
MN97081	56.5	29.5	69	3	0	4	13	83	72	14.5	2.03	50.0	12.9	0.48	55.8	3	58.0	2.75	3	4	3	4	199
MN97083	54.2	30.2	67	3	2	10	17	71	66	13.8	1.87	55.8	12.4	0.46	53.2	3	57.0	3.50	3	3	3	4	188
MN97084	53.8	26.6	43	9	3	13	12	72	68	14.2	1.88	40.7	13.1	0.46	55.3	3	59.0	3.00	3	1	3	4	190
MN97087	56.8	28.9	56	7	3	7	19	71	67	13.4	1.89	52.4	12.5	0.46	56.2	2	60.5	3.25	3	3	3	5	192
MN97089	57.3	31.3	76	3	2	11	21	66	64	13.8	1.80	55.5	12.5	0.44	53.2	2	57.0	2.75	2	3	5	5	184
MN97091	57.8	32.2	65	4	18	33	26	23	47	13.7	1.99	56.0	12.9	0.49	55.3	2	59.0	3.00	3	4	3	5	184
MN97097	58.9	35.3	76	3	3	10	24	63	63	14.2	1.86	54.8	12.8	0.43	55.8	2	60.0	2.25	2	3	5	4	165
MN97105	57.9	33.0	74	2	1	2	6	91	77	14.6	1.99	57.1	12.9	0.56	58.2	2	60.5	2.25	2	1	6	5	172
MN97118	57.8	32.1	65	6	2	6	19	73	68	13.7	1.86	53.0	12.2	0.42	56.9	1	58.8	1.75	2	4	3	5	160
MN97119	58.2	28.9	45	6	47	29	15	9	36	13.4	1.73	40.5	11.9	0.34	50.5	1	54.5	2.00	2	1	3	4	148
MN97123	58.0	34.0	70	2	1	4	22	73	67	14.8	1.93	55.0	13.8	0.46	55.8	1	58.0	2.00	2	4	3	5	188
MN97126	57.4	29.1	45	8	0	1	6	93	82	13.5	1.85	56.4	11.8	0.53	57.3	2	63.5	2.75	2	3	5	5	180
MN97139	58.2	33.1	71	3	3	8	19	70	65	13.1	1.89	62.8	11.6	0.44	53.8	2	59.0	2.75	2	3	3	5	168
MN97149	58.6	33.9	73	3	0	4	11	85	73	13.8	1.86	59.0	12.5	0.45	55.8	2	60.0	2.50	2	6	3	6	198
MN97156	57.0	30.3	57	7	3	8	24	65	64	14.5	1.87	53.7	13.6	0.42	53.2	1	57.0	2.50	2	4	3	4	190
MN97167	57.3	29.9	58	7	1	4	10	85	72	13.6	1.89	61.2	12.4	0.45	55.8	4	60.0	4.25	3	4	3	5	183
MN97168	59.1	29.8	68	4	1	2	9	88	75	14.1	1.85	55.7	12.8	0.42	56.5	4	58.5	3.50	3	4	3	5	192
MN97172	60.6	29.4	59	3	1	8	21	70	66	12.7	1.88	59.3	11.6	0.39	52.9	2	56.8	3.00	2	3	5	5	194

USDA/ARS Wheat Quality Laboratory
Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Crookston
Nursery: AY3

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)
					A	B	C	D	HI	Pro	Ash	Pro	Ash					D	C	C	G	T
BACUP	61.6	31.4	33	3	2	6	25	67	66	63	1.80	16.2	0.41	61.1	4	64.5	2.00	2	3	5	4	182
VERDE	60.3	32.7	81	1	0	1	11	88	73	73	1.31	11.2	0.40	55.5	2	57.5	3.50	3	3	5	4	172
2375	60.5	34.3	71	3	2	2	13	83	70	64	1.35	12.0	0.43	55.8	2	60.0	3.00	3	3	3	4	183
MN97173	59.8	29.5	60	6	1	1	2	96	87	74	1.29	10.9	0.51	53.5	1	57.5	2.75	3	4	3	4	160
MN97178	59.0	27.6	63	5	2	3	9	86	75	53	1.41	1.71	0.44	53.8	3	56.0	3.50	3	3	6	4	182
MN97179	57.6	27.8	54	6	0	2	7	91	77	71	1.46	1.77	0.48	57.3	3	57.0	3.00	2	4	3	3	179
MN97183	57.7	26.3	57	3	1	1	6	92	79	62	1.40	1.71	0.43	55.8	3	58.0	2.25	2	4	3	3	175
MN97195	57.7	28.9	33	11	3	4	13	80	71	70	1.52	1.74	0.44	58.2	4	60.5	3.00	3	3	5	5	190
MN97198	58.4	26.6	26	13	36	37	19	8	37	6	14.2	1.91	0.40	52.6	2	58.8	3.25	2	3	5	4	180
MN97209	57.4	29.3	53	8	1	2	6	91	78	71	1.35	1.60	0.46	55.3	2	59.0	3.00	2	3	3	3	168
MN97211	53.0	28.9	47	7	5	12	24	59	63	50	1.38	1.98	0.47	51.6	2	55.5	3.00	2	1	5	4	175
MN97213	57.4	30.3	60	4	0	2	10	88	77	65	1.41	1.69	0.47	51.6	1	57.5	3.00	2	3	3	4	174
MN97214	58.9	35.8	76	2	1	3	15	81	71	59	1.41	1.74	0.50	51.6	1	55.5	3.00	2	4	6	4	174
MN97237	59.0	28.1	39	7	3	8	19	70	69	74	1.38	1.59	0.46	51.9	1	58.0	3.75	2	5	6	5	178
MN97255	59.1	31.7	66	3	1	3	10	86	72	66	1.35	1.58	0.43	52.2	1	56.5	3.00	2	3	6	5	181
MN97257	54.6	31.6	57	4	3	7	17	73	68	49	1.32	1.71	0.52	51.6	1	55.5	3.00	2	4	5	3	175
MN97261	54.9	26.7	27	19	3	2	7	88	81	62	1.39	1.74	0.56	51.6	1	56.8	2.75	2	4	3	4	182
MN97283	59.4	29.2	64	4	3	7	19	71	67	64	1.42	1.76	0.50	52.6	2	56.8	3.25	2	3	5	5	175
MN97286	60.2	30.8	61	2	1	2	6	91	77	62	1.35	1.69	0.47	49.2	1	53.0	3.75	2	4	3	4	174
MN97302	58.6	31.0	52	5	1	3	12	84	70	55	1.41	1.91	0.44	54.6	3	56.8	2.75	2	1	3	5	185
MN97305	58.4	34.4	74	2	3	5	26	66	64	51	1.37	1.70	0.41	55.5	3	59.5	3.25	2	1	5	6	178
MN97307	59.8	31.6	67	2	2	6	19	73	68	65	1.29	1.88	0.26	56.2	3	60.5	2.00	2	3	3	4	162
MN97311	60.7	32.9	66	4	2	4	14	80	70	54	1.39	1.82	0.31	55.8	4	60.0	3.50	2	4	5	6	192
MN97332	61.3	33.0	71	3	3	3	19	75	66	67	1.35	1.83	0.37	58.6	4	60.8	2.75	2	5	5	6	208
MN97351	57.8	30.7	56	4	2	6	22	70	67	54	1.31	1.74	0.40	55.3	4	57.5	4.75	2	3	3	5	188
MN97352	60.3	31.6	66	2	1	2	4	93	78	72	1.39	1.66	0.43	57.6	5	57.5	3.75	3	3	3	6	183
MN97364	60.3	31.8	57	3	55	22	9	14	33	24	1.34	1.89	0.34	53.8	3	58.0	3.00	3	5	5	5	186
MN97365	59.9	30.3	63	3	1	2	12	85	75	69	1.31	1.77	0.45	57.3	3	59.0	2.25	2	4	6	4	175
MN97367	57.2	30.4	57	2	4	8	19	69	65	52	1.34	1.73	0.44	55.3	3	57.0	3.25	2	3	5	5	174
MN97372	58.2	30.3	60	4	3	4	12	81	73	56	1.40	1.70	0.43	58.2	5	62.5	4.00	3	3	6	6	178
MN97395	55.8	30.2	52	8	6	4	12	78	71	71	1.38	1.80	0.44	56.9	4	58.8	3.25	2	3	5	5	186
MN97396	56.5	29.4	46	6	5	8	21	66	64	38	1.36	1.71	0.41	57.6	3	60.0	2.50	2	4	3	4	175
MN97400	56.6	27.5	33	11	2	5	15	78	69	44	1.41	1.56	0.40	59.0	4	59.0	4.00	2	3	5	5	192
MN97409	58.3	34.8	81	2	3	6	35	56	62	44	1.40	1.66	0.40	57.9	3	58.0	2.75	2	3	3	5	180
MN97419	52.8	26.6	47	13	3	6	7	84	74	61	1.33	1.75	0.47	54.3	3	58.5	3.25	2	1	3	3	178
MN97421	56.3	30.9	50	3	2	5	10	83	72	66	1.42	1.75	0.44	56.9	4	58.8	3.50	2	3	3	4	190

USDA/ARS Wheat Quality Laboratory

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Morris
Nursery: AY3

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR	Wheat (14%)			Flour (14%)		Mix Abs	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)		
					A	B	C	D		HI	Hard	Prot	Ash	Ext (%)				Prot	Ash	D	C		G	C
BACUP	59.7	30.2	48	4	5	5	25	65	64	58	16.7	1.85	51.0	16.0	0.44	63.1	4	65.0	2.25	3	3	6	6	188
VERDE	57.6	31.8	78	2	4	8	24	64	63	68	14.2	1.77	61.5	12.5	0.39	59.3	3	61.0	2.75	3	3	6	4	175
	58.2	33.7	72	2	4	8	30	58	62	61	14.1	1.79	61.8	12.7	0.40	57.3	3	61.0	2.50	3	3	5	4	188
2375	58.9	30.0	67	5	0	1	4	95	81	75	13.5	1.75	57.5	11.7	0.47	57.3	3	61.0	3.00	3	4	3	4	172
MN97173	57.0	29.4	56	6	4	7	27	62	61	61	14.5	1.72	59.9	13.3	0.41	55.8	4	58.0	3.25	3	3	3	4	190
MN97178	57.3	30.2	73	2	1	1	15	83	70	66	15.7	1.72	60.0	14.6	0.42	59.0	4	63.0	3.25	3	3	3	4	195
MN97183	57.9	30.4	72	4	3	19	32	46	58	60	14.9	1.75	59.3	13.5	0.40	56.2	4	58.5	3.25	3	3	5	4	206
MN97195	59.7	31.1	54	4	3	4	12	81	70	65	15.2	1.73	56.1	13.9	0.42	59.3	4	63.5	3.50	3	3	5	5	190
MN97198	59.8	27.7	41	6	56	25	12	7	31	19	14.2	1.85	42.8	13.0	0.34	53.8	3	58.0	3.25	2	3	6	4	170
MN97209	56.2	30.6	59	7	1	6	19	74	68	58	13.5	1.79	58.6	11.7	0.44	55.5	3	59.5	3.50	3	3	5	4	168
MN97211	52.3	31.3	60	3	6	21	39	34	54	42	13.9	1.83	47.3	12.9	0.39	53.2	3	54.8	5.00	3	4	5	4	192
MN97213	57.5	35.8	62	1	0	5	25	70	65	56	14.4	1.80	59.3	12.4	0.47	53.5	2	56.8	3.25	3	3	6	4	172
MN97214	58.1	39.3	90	1	1	7	31	61	62	58	14.4	1.84	57.2	12.6	0.44	53.5	2	57.5	3.00	3	3	3	4	178
MN97237	57.0	27.0	38	12	1	5	15	79	71	62	14.6	1.75	51.2	13.4	0.44	56.9	3	60.8	3.00	3	5	4	5	200
MN97255	55.5	31.5	62	3	2	10	40	48	60	51	13.8	1.77	56.4	12.1	0.39	55.5	2	59.5	2.50	3	3	6	5	180
MN97257	55.3	31.8	60	3	2	9	24	65	64	50	13.8	1.88	51.7	12.3	0.45	55.3	2	60.5	2.75	3	3	5	5	192
MN97261	53.8	27.7	57	15	4	4	20	72	69	61	14.1	1.84	51.3	12.3	0.47	53.8	2	62.0	3.25	3	3	5	5	193
MN97283	57.4	30.6	68	4	2	13	33	52	60	57	15.0	1.79	48.5	13.7	0.50	57.3	4	61.0	3.00	3	3	3	5	190
MN97286	58.1	31.6	75	1	1	4	17	78	69	54	14.9	1.87	57.3	13.1	0.48	55.5	2	59.5	2.25	3	4	3	4	175
MN97302	56.7	30.1	55	3	5	12	27	56	60	55	15.1	1.82	51.5	13.5	0.39	56.5	3	58.5	2.50	3	3	3	4	198
MN97305	56.1	33.8	72	2	2	11	34	53	60	52	14.2	1.72	51.2	12.9	0.38	55.0	3	59.0	3.75	3	3	3	4	195
MN97307	56.8	29.2	62	5	2	11	28	59	62	54	14.2	1.94	56.0	12.9	0.40	53.2	2	55.5	2.50	3	5	6	5	178
MN97311	56.1	31.2	65	4	1	6	19	74	68	58	14.9	1.91	51.0	13.6	0.43	57.3	4	63.0	4.25	3	3	5	5	201
MN97332	59.4	33.2	72	2	2	17	37	44	57	60	14.6	1.63	54.6	13.5	0.36	58.2	4	60.5	3.50	3	5	3	5	200
MN97351	55.5	30.7	64	4	9	24	34	33	53	36	14.0	1.57	55.6	12.8	0.35	53.8	3	59.0	4.25	3	5	6	5	190
MN97352	57.2	31.3	74	2	2	5	19	74	66	58	14.8	1.78	58.0	13.1	0.41	56.9	4	60.8	3.00	3	3	3	5	192
MN97364	56.6	31.6	73	3	79	5	1	15	18	19	14.0	1.68	38.7	12.2	0.32	55.0	3	59.0	2.50	3	5	3	5	191
MN97365	56.9	29.5	56	6	3	5	13	79	69	47	14.3	1.87	55.3	12.5	0.46	55.8	3	60.0	2.50	3	3	3	4	180
MN97367	55.1	29.5	53	7	4	9	30	57	62	42	14.2	1.78	51.7	12.8	0.39	55.8	4	60.0	4.75	3	4	5	4	195
MN97369	54.2	29.2	59	6	3	13	30	54	60	41	14.6	1.79	49.8	13.0	0.39	56.5	4	60.5	5.25	3	5	5	5	181
MN97372	55.7	33.6	72	3	4	7	16	73	66	58	14.6	1.87	53.4	12.8	0.40	55.8	4	62.0	3.50	3	5	4	4	188
MN97395	56.0	33.1	77	1	11	33	31	25	49	47	13.7	1.83	50.5	13.4	0.37	55.8	2	60.0	2.25	3	4	3	4	190
MN97396	56.0	27.8	56	5	6	20	38	36	54	41	14.5	2.03	49.5	13.5	0.35	57.3	3	59.0	3.50	3	3	3	5	193
MN97400	56.5	34.3	81	4	7	24	39	30	52	44	14.8	1.58	48.3	14.3	0.36	58.2	4	60.5	2.50	3	5	3	5	200
MN97419	55.0	28.7	57	3	2	7	18	73	68	53	13.9	1.86	50.5	12.2	0.41	53.2	3	59.0	3.75	3	3	5	5	180
MN97421	55.8	30.1	53	7	3	10	22	65	64	57	15.1	1.84	49.5	13.7	0.41	56.2	3	60.5	3.00	3	3	3	5	193

USDA/ARS Wheat Quality Laboratory
Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: St. Paul
Nursery: AY3

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Time	Rating Scores					Loaf Vol (cc)	
										Prot	Ash		Prot	Ash					D	C	C	G	T		
					A	B	C	D																	HI
BACUP	61.0	29.8	36	4	5	11	24	60	62	56	17.1	1.99	50.5	16.6	0.43	62.7	5	64.0	2.25	3	3	3	5	5	222
VERDE	57.4	29.2	65	3	1	3	22	74	68	63	14.4	1.67	56.3	13.1	0.39	58.6	3	60.0	2.75	3	3	3	5	4	202
2375	58.8	34.5	65	3	1	4	17	78	69	65	15.1	1.82	53.9	13.6	0.43	66.5	6	63.5	2.50	3	3	3	3	5	204
MN97173	57.3	29.0	49	8	0	0	4	96	85	63	14.0	2.04	49.8	11.9	0.54	56.2	2	59.5	2.50	3	3	3	5	5	182
MN97178	59.0	27.4	53	5	2	5	14	79	69	60	14.2	1.82	56.0	13.4	0.44	56.2	3	60.5	3.50	3	3	3	5	4	212
MN97179	56.6	27.7	49	7	3	7	17	73	70	58	15.8	2.10	52.7	14.9	0.46	62.7	5	64.8	3.00	3	3	3	6	5	223
MN97183	57.4	26.6	60	5	1	4	5	90	77	61	14.5	1.95	51.0	13.6	0.45	54.6	3	60.8	3.75	3	3	3	3	5	210
MN97195	57.4	27.0	25	16	1	5	17	77	71	62	15.6	2.06	49.3	15.2	0.48	58.2	4	64.5	3.50	3	3	3	5	6	214
MN97198	58.8	24.9	21	14	50	30	13	7	32	16	14.9	1.92	26.8	13.0	0.35	58.6	4								
MN97209	57.0	29.3	48	8	1	4	10	85	74	53	13.5	1.88	55.4	12.1	0.47	54.6	3	58.8	3.00	3	3	3	6	5	178
MN97211	54.6	29.5	52	5	21	31	28	20	46	28	13.8	1.96	40.4	13.1	0.40	50.5	2	57.5	4.00	3	4	6	4	4	196
MN97213	58.2	31.5	63	3	1	3	6	90	73	64	14.0	1.92	57.0	13.0	0.49	58.2	3	64.5	3.50	3	3	6	4	4	192
MN97214	58.0	34.8	76	4	1	2	12	85	73	58	14.5	1.91	54.3	12.9	0.47	51.6	1	55.5	4.00	3	3	3	6	4	198
MN97237	56.5	25.2	18	21	3	5	7	85	75	61	14.7	1.88	49.3	13.6	0.48	55.5	2	61.5	3.00	3	3	3	3	4	208
MN97255	57.2	29.3	54	4	1	7	22	70	67	62	14.1	1.97	55.3	12.7	0.42	54.3	2	58.5	3.00	3	3	3	5	4	198
MN97257	56.2	31.6	54	7	4	8	25	63	62	47	13.5	2.05	48.5	12.4	0.47	51.3	1	55.0	3.25	3	3	3	6	4	193
MN97261	54.2	25.9	27	17	2	4	10	84	76	60	14.4	1.97	49.3	12.7	0.49	50.8	1	56.8	3.25	3	3	3	6	5	193
MN97283	56.2	26.5	49	10	2	7	22	69	67	64	15.0	1.98	50.0	14.3	0.44	59.3	5	61.0	3.50	3	4	6	6	6	
MN97286	54.6	27.7	56	5	1	4	12	83	71	68	15.7	2.09	49.5	14.6	0.55	58.6	2	62.8	2.50	3	3	6	5	5	212
MN97302	55.4	27.7	38	13	2	9	14	75	68	57	15.5	2.07	54.1	15.0	0.48	62.1	3	62.0	2.50	3	3	3	5	5	230
MN97305	53.6	29.2	46	9	5	9	24	62	62	51	14.9	2.08	48.8	13.9	0.41	58.2	4	62.5	2.75	3	3	3	5	212	
MN97307	57.7	27.9	67	4	3	10	26	61	63	60	14.1	1.99	57.3	13.0	0.42	57.3	2	59.0	1.75	3	5	5	5	5	190
MN97311	55.1	29.4	54	4	3	8	12	77	69	53	15.1	1.98	52.9	13.9	0.45	58.2	5	64.5	4.00	3	5	5	5	5	220
MN97332	57.8	30.1	49	8	3	9	29	59	62	71	15.0	1.93	56.1	14.8	0.39	59.3	3	61.0	2.75	3	5	5	5	5	218
MN97351	58.4	29.1	49	10	6	8	24	62	63	58	14.3	1.94	52.7	13.5	0.37	55.5	4	59.5	3.50	3	4	5	5	5	195
MN97352	57.9	30.8	60	6	0	2	9	89	74	74	15.1	1.76	54.5	13.9	0.44	60.0	5	62.0	3.25	3	3	5	5	5	211
MN97364	58.5	31.0	60	4	72	11	5	12	24	35	14.6	1.84	37.7	13.6	0.35	57.3	4	59.0	2.25	3	5	5	5	5	210
MN97365	56.8	27.2	45	11	1	2	8	89	75	71	14.9	1.92	51.7	13.5	0.47	60.8	3	62.8	2.50	3	3	5	5	5	198
MN97367	57.0	28.7	49	9	3	9	29	59	63	39	14.4	1.89	48.8	13.1	0.40	58.2	5	60.5	3.50	3	3	5	5	5	200
MN97369	55.1	27.3	46	10	5	6	16	73	67	60	14.3	1.95	54.4	13.4	0.44	60.8	8	64.0	5.00	3	3	5	5	5	205
MN97372	57.3	32.6	69	4	2	4	14	80	69	73	15.0	1.99	58.9	13.7	0.43	58.6	4	62.8	3.50	3	3	5	5	5	209
MN97395	57.4	32.3	68	3	7	22	33	38	54	57	14.0	1.62	55.2	13.2	0.35	56.9	2	58.8	2.00	3	3	5	5	5	200
MN97396	57.6	29.7	69	5	3	15	37	45	59	50	14.0	1.94	54.3	13.2	0.40	59.6	5	62.5	4.00	3	3	3	5	5	217
MN97400	55.6	32.0	65	4	3	14	35	48	58	50	14.9	2.00	52.9	14.9	0.49	59.6	4	63.5	2.75	3	3	5	5	5	195
MN97419	55.3	28.3	48	10	3	4	17	76	71	64	14.1	1.94	52.3	12.5	0.45	56.9	4	60.8	3.00	3	3	3	5	5	212
MN97421	52.6	28.7	35	12	5	10	19	66	63	64	16.0	2.28	44.7	14.7	0.46	58.6	4	62.8	2.75	3	3	3	5	5	

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Crookston
Nursery: AY4

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)	
					A	B	C	D		HI	Prot		Ash	Prot					Ash	D	C	G		T
BACUP	61.3	28.9	23	4	1	2	12	85	88	52	16.3	1.78	57.9	14.6	0.43	57.6	3	59.5	2.25	3	5	6	180	
VERDE	58.7	28.5	68	3	0	2	9	89	83	53	13.5	1.55	66.5	11.4	0.42	52.6	2	54.8	2.75	2	3	5	163	
	58.4	33.3	52	3	0	4	20	76	75	49	13.7	1.83	62.7	12.1	0.42	53.2	2	56.5	3.25	3	3	5	198	
2375	57.2	29.6	48	7	1	4	19	76	74	53	14.6	1.73	58.7	13.4	0.43	52.2	3	54.5	3.50	3	6	5	184	
MN97422	57.0	28.8	43	8	1	3	14	82	81	53	14.5	1.87	58.1	12.7	0.43	54.3	3	56.5	3.50	2	3	6	184	
MN97423	59.5	33.1	72	2	0	2	17	81	79	51	13.3	1.78	57.6	11.2	0.47	49.6	1	52.8	3.00	2	1	3	4	172
MN97424	60.1	29.9	59	5	1	5	14	80	81	42	13.5	1.79	59.9	11.8	0.42	50.8	2	54.8	4.00	2	3	6	4	190
MN97425	61.2	30.7	60	2	1	3	16	80	85	57	14.4	1.67	59.3	13.4	0.42	60.8	4	63.0	2.75	3	3	6	6	190
MN97434	60.5	28.6	57	5	2	9	28	61	70	41	14.1	1.62	56.0	13.0	0.37	55.3	3	59.0	3.25	3	6	3	6	192
MN97448	60.6	27.2	44	8	2	5	15	78	75	49	13.2	1.58	51.6	12.1	0.41	57.3	3	59.0	3.25	3	5	3	6	188
MN97456	60.2	34.0	74	1	0	1	19	80	73	47	14.7	1.67	58.7	13.0	0.38	53.8	3	60.0	3.75	3	5	3	6	182
MN97469	60.0	33.3	73	1	1	3	14	82	72	77	13.6	1.73	63.1	11.3	0.46	54.3	2	58.5	3.00	2	3	5	5	178
MN97479	59.2	32.1	67	5	1	2	16	81	71	53	13.9	1.73	62.9	12.1	0.46	59.6	3	61.5	2.75	2	3	5	5	168
MN97480	60.3	35.3	79	2	0	4	18	78	75	70	15.0	1.71	59.2	12.9	0.43	55.0	2	59.0	2.50	2	3	3	5	180
MN97482	59.7	33.1	72	3	0	3	14	83	81	57	14.0	1.71	62.0	12.2	0.42	56.2	3	60.5	3.50	2	5	3	6	188
MN97491	60.3	32.0	68	3	0	1	11	88	80	56	14.5	1.69	63.1	12.5	0.43	57.3	3	59.0	2.25	2	5	3	6	182
MN97496	60.2	32.5	71	4	1	3	15	81	74	54	14.3	1.71	60.6	12.4	0.44	55.5	3	57.5	3.50	3	3	3	6	172
MN97498	60.3	34.4	75	3	1	3	17	79	74	63	14.3	1.62	60.4	12.4	0.44	56.9	3	58.8	3.00	3	3	5	6	172
MN97500	61.0	36.7	77	1	1	3	20	76	75	69	14.7	1.73	62.7	12.5	0.42	59.0	4	61.0	2.75	2	3	3	6	185
MN97503	60.2	34.4	76	2	4	11	25	60	71	59	14.7	1.75	61.4	12.8	0.43	57.3	3	59.0	3.00	2	3	3	6	183
MN97513	58.7	26.4	53	5	36	31	16	17	42	10	12.7	1.64	31.8	11.5	0.39	49.2	1	55.0	4.25	2	3	5	4	175
MN97514	57.4	29.5	63	4	62	19	12	7	30	17	12.6	1.53	36.6	11.0	0.41	50.8	1							
MN97518	62.2	33.2	81	1	0	0	7	93	84	78	14.5	1.64	61.2	12.4	0.41	61.1	3	57.0	1.25	2	4	3	1	135
MN97519	60.3	35.6	74	2	25	28	17	30	53	13	12.7	1.64	34.7	10.5	0.32	50.5	1	55.5	2.75	2	3	5	4	165
MN97520	60.5	29.5	67	4	13	13	12	62	68	32	13.6	1.53	49.3	11.8	0.38	56.9	2	54.8	1.75	2	4	1	4	160
MN97536	57.8	24.1	47	10	22	30	21	27	50	17	13.2	1.63	34.4	11.6	0.34	53.2	2	57.0	2.75	2	3	3	4	160
MN97541	58.9	26.9	64	2	0	1	4	95	84	58	13.8	1.70	56.1	11.8	0.43	52.2	2	58.5	3.50	2	4	3	5	200
MN97542	57.9	29.3	56	4	1	8	23	68	69	58	15.5	1.58	61.0	15.1	0.42	57.6	3	59.5	2.50	2	4	3	4	172
MN97543	58.3	32.2	73	4	1	3	17	79	77	68	15.4	1.80	57.3	13.7	0.44	63.4	4	65.5	3.00	3	3	4	6	198
MN97544	59.9	32.6	70	2	1	10	26	63	73	58	14.9	1.58	56.2	14.7	0.39	56.9	3	60.8	2.50	2	5	5	5	188
MN97548	60.1	28.9	40	6	0	3	16	81	86	47	15.0	1.59	53.5	13.8	0.42	58.2	3	64.5	2.50	2	3	5	5	180
MN97551	60.6	26.7	54	6	1	1	6	92	85	64	15.2	1.84	61.3	14.2	0.42	64.4	6	70.5	3.50	2	4	3	6	192
MN97553	58.5	25.2	40	9	1	1	4	94	88	46	14.2	1.73	60.6	12.8	0.43	55.5	3	57.5	3.00	2	3	5	6	175
MN97555	58.9	27.4	22	12	0	2	13	85	82	66	15.8	1.87	55.0	14.6	0.42	57.9	3	60.0	3.50	2	5	6	6	192
4035	60.5	28.0	38	8	0	2	7	91	78	64	14.2	1.63	58.1	11.3	0.38	52.2	2	56.5	2.50	2	4	3	5	168
4036	60.6	26.6	34	4	4	6	17	73	78	51	14.7	1.60	61.0	13.7	0.38	56.9	3	58.8	2.25	2	3	3	5	168

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Morris
Nursery: AY4

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)
					A	B	C	D	HI	Prot	Ash		Prot	Ash					D	C	C	C	
BACUP	60.1	27.4	27	5	2	0	4	94	109	54	15.7	1.77	15.0	0.38	57.9	3	56.0	2.75	3	3	3	3	220
VERDE	57.6	31.4	78	2	1	2	13	84	96	60	14.4	1.65	12.7	0.35	55.3	2	55.0	2.25	3	3	3	5	185
2375	57.8	31.9	62	3	1	4	9	86	98	54	13.7	1.88	12.3	0.37	54.3	2	56.5	2.75	3	3	3	5	190
MN97422	54.3	29.0	47	8	1	2	8	89	100	53	14.6	1.72	13.3	0.37	52.6	2	54.8	2.75	3	3	3	5	188
MN97423	55.0	28.0	42	10	1	3	10	86	99	51	14.5	1.92	13.5	0.43	55.0	3	56.8	2.50	3	3	3	5	195
MN97424	56.8	29.5	59	4	1	2	9	88	97	46	13.0	1.72	11.7	0.44	49.2	1	55.5	3.00	2	3	6	4	172
MN97425	58.0	28.7	62	5	0	3	16	81	91	48	13.2	1.64	12.1	0.39	50.5	1	54.5	3.25	2	4	6	5	178
MN97434	59.2	32.1	67	2	0	4	14	82	92	48	14.7	1.64	13.1	0.39	55.5	2	57.5	3.00	3	3	3	5	192
MN97448	57.8	28.0	56	5	2	5	11	82	92	43	14.4	1.64	13.7	0.32	56.9	2	56.8	2.50	3	3	3	6	195
MN97450	57.0	26.3	48	6	0	2	10	88	101	56	13.0	1.54	12.1	0.34	53.2	2	57.0	3.25	3	3	3	5	182
MN97456	58.2	33.0	74	2	0	1	13	86	91	62	14.6	1.64	13.6	0.34	53.2	2	57.0	3.75	3	5	3	5	202
MN97469	57.3	29.6	65	4	0	1	4	95	105	64	13.5	1.79	11.7	0.41	51.9	2	58.5	3.00	3	3	6	5	165
MN97479	56.4	29.1	59	7	0	2	11	87	89	55	13.7	1.77	12.4	0.41	51.3	2	55.0	3.25	2	3	6	5	168
MN97480	58.4	32.2	58	2	0	1	8	91	99	78	14.7	1.68	12.9	0.40	56.5	2	59.0	3.00	3	3	3	6	170
MN97482	56.2	30.1	60	6	2	2	11	85	89	54	13.4	1.76	12.1	0.43	54.3	3	58.5	3.00	3	3	5	5	170
MN97491	58.7	31.2	67	2	0	1	8	91	95	67	14.0	1.71	12.8	0.42	52.9	2	56.8	2.50	2	5	5	6	198
MN97496	57.3	30.0	56	7	0	1	13	86	93	61	14.2	1.68	13.1	0.39	53.2	3	57.0	3.75	3	3	5	5	172
MN97498	55.9	27.8	48	9	1	0	6	93	99	56	14.2	1.82	12.8	0.41	51.6	2	56.8	3.50	2	4	6	6	172
MN97500	57.8	33.9	74	1	0	4	12	84	91	70	13.6	1.68	12.4	0.41	56.5	3	58.5	3.25	3	3	5	6	190
MN97503	58.5	35.4	78	1	0	6	27	67	76	55	14.0	1.56	12.8	0.34	53.2	2	57.0	3.00	3	3	5	6	180
MN97536	58.9	27.4	57	4	21	14	12	53	65	8	13.5	1.68	11.9	0.40	49.6	2	53.5	2.75	3	5	6	4	188
MN97541	58.6	27.8	62	4	0	1	3	96	104	68	13.7	1.74	12.2	0.32	51.3	2	57.0	3.50	3	1	3	5	191
MN97542	56.8	27.9	63	2	1	3	10	86	93	49	15.2	1.68	14.9	0.39	57.6	3	57.5	2.25	3	5	3	4	193
MN97543	57.4	32.4	77	2	1	1	9	89	94	67	15.0	1.85	14.4	0.37	58.2	3	62.5	2.75	3	3	3	6	211
MN97544	57.0	33.0	78	1	1	2	21	76	84	53	14.8	1.81	14.4	0.39	57.3	3	59.0	2.00	3	3	3	6	195
MN97548	59.3	30.0	49	3	2	4	12	82	98	50	14.8	1.81	14.1	0.39	57.6	4	59.5	2.75	3	4	6	5	198
MN97551	60.2	28.1	57	4	1	1	3	95	111	55	14.9	1.62	14.1	0.40	51.3	2	59.0	4.25	3	3	3	6	210
MN97553	56.9	28.6	63	3	1	1	7	91	103	59	13.8	1.58	12.8	0.37	54.3	3	58.0	3.00	3	5	5	5	198
MN97555	58.0	26.3	74	10	0	1	10	89	99	51	13.7	1.72	13.0	0.40	56.2	3	58.5	3.25	3	5	3	5	188
MN97558	58.1	27.9	37	11	1	0	6	93	102	65	13.6	1.67	11.7	0.41	53.2	2	59.0	2.75	3	3	6	4	172
MN97561	58.9	26.3	41	4	0	4	8	88	99	59	14.6	1.57	14.4	0.37	58.2	3	60.5	2.00	3	3	3	5	190

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: St. Paul
Nursery: AY4

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)
					A	B	C	HI	Prot	Ash		Prot	Ash					D	C	G	T	
BACUP	61.3	29.1	31	4	3	4	11	82	92	1.93	59.0	16.4	0.44	62.1	4	64.0	2.25	3	3	3	5	204
VERDE	58.0	28.5	66	4	1	2	10	87	96	1.85	66.5	12.4	0.38	57.9	3	59.5	3.00	3	3	3	4	182
2375	59.0	33.7	69	2	1	2	15	82	88	1.87	65.7	13.4	0.42	59.3	3	61.0	2.50	3	3	3	5	200
MN97422	56.1	29.2	42	9	1	3	11	85	89	2.06	55.0	14.0	0.44	59.6	4	61.5	2.50	3	3	3	5	213
MN97423	55.7	29.6	46	7	3	4	12	81	88	2.20	55.1	14.2	0.43	58.2	4	60.5	2.50	3	3	3	5	224
MN97424	59.4	31.8	61	4	0	4	15	81	90	1.92	56.0	11.4	0.46	52.9	2	54.8	3.00	3	4	3	4	165
MN97425	60.2	30.9	64	4	0	3	12	85	91	1.85	61.4	12.3	0.43	56.9	3	58.8	3.50	3	1	3	4	188
MN97434	59.8	31.9	63	4	2	4	11	83	91	1.85	57.8	14.5	0.49	60.3	4	61.5	2.75	3	4	3	5	214
MN97448	60.0	29.6	54	6	2	8	21	69	79	1.84	59.5	13.9	0.37	58.6	3	60.0	2.25	3	5	3	5	201
MN97450	59.0	27.1	47	7	2	2	8	88	89	1.93	56.9	12.7	0.37	58.2	3	59.5	2.75	3	5	3	5	202
MN97456	60.3	31.3	67	4	1	1	6	92	89	1.87	60.6	13.2	0.39	58.6	5	60.8	3.25	3	5	5	5	192
MN97469	58.7	33.5	66	4	1	3	14	82	91	1.97	59.4	12.2	0.47	57.9	4	58.0	2.75	3	5	5	5	191
MN97479	57.3	30.7	56	8	1	2	14	83	87	1.91	62.1	12.6	0.47	58.2	5	60.5	3.00	3	5	5	5	175
MN97480	58.7	33.4	71	3	1	1	7	91	91	1.94	59.0	13.0	0.45	59.0	3	61.0	2.25	3	3	3	5	181
MN97482	57.9	32.9	62	6	0	4	15	81	88	1.87	60.9	12.8	0.42	57.9	4	60.0	3.50	3	5	6	5	192
MN97491	59.4	31.4	67	4	1	2	8	89	97	1.79	64.1	13.1	0.44	58.6	3	60.8	2.50	3	3	3	5	200
MN97496	59.8	30.9	62	4	0	3	9	88	94	1.86	60.4	13.2	0.40	57.9	4	60.0	3.50	3	3	4	6	188
MN97498	58.2	30.1	57	5	0	3	8	89	99	2.01	59.9	13.4	0.41	57.3	4	60.5	3.75	3	3	4	6	180
MN97500	57.7	34.5	67	3	0	1	9	90	100	1.83	61.6	13.5	0.43	59.6	5	63.5	3.25	3	3	3	5	200
MN97503	56.6	33.9	62	4	1	3	14	82	94	1.93	57.4	13.9	0.51	56.9	4	58.8	3.50	3	3	3	5	182
MN97513	56.9	27.7	52	4	32	18	14	36	53	2.03	38.8	12.3	0.42	52.9	2	54.8	3.50	3	3	4	4	190
MN97514	56.1	28.0	50	9	56	15	9	20	35	1.87	38.6	11.8	0.38	53.8	3	56.0	3.00	3	5	5	5	192
MN97518	59.4	30.3	64	4	0	0	3	97	109	1.87	55.8	13.8	0.59	58.2	3	60.5	1.75	2	2	3	5	172
MN97519	56.4	32.5	50	7	22	14	11	53	64	1.97	36.1	11.7	0.34	55.0	2	58.5	2.50	3	3	5	5	168
MN97520	59.2	28.4	51	5	15	8	8	69	81	1.83	46.3	12.8	0.38	56.9	3	58.8	2.25	3	3	3	5	182
MN97536	57.0	25.2	40	9	19	17	13	51	65	1.94	38.6	12.4	0.33	52.2	2	54.5	2.25	3	3	3	4	170
MN97541	59.0	27.1	55	4	0	1	4	95	97	1.83	55.7	12.1	0.42	55.0	3	57.0	2.50	3	5	6	5	175
MN97542	57.1	27.9	54	7	2	5	14	79	83	1.92	56.2	14.9	0.39	59.6	4	61.5	2.25	3	5	6	5	196
MN97543	57.8	31.2	67	2	0	1	5	94	97	1.89	58.5	15.1	0.52	60.5	4	58.5	2.50	3	3	3	5	201
MN97544	60.1	32.2	67	2	1	5	16	78	84	1.83	60.9	14.1	0.32	59.3	3	61.0	2.25	3	3	6	6	190
MN97548	61.2	33.1	63	2	1	8	17	74	90	2.02	59.3	14.3	0.37	61.8	3	62.0	2.25	3	3	3	6	181
MN97551	61.3	27.9	51	5	1	1	2	96	108	1.97	59.9	14.0	0.40	58.2	5	58.5	4.50	3	3	3	6	212
MN97553	57.2	26.9	42	9	0	1	5	94	103	1.86	59.4	13.3	0.40	60.0	3	60.0	2.25	3	4	3	6	205
MN97555	55.8	26.4	9	20	1	2	6	91	101	2.05	56.1	14.5	0.45	60.0	5	62.0	2.75	3	3	5	5	178
MN97558	60.5	27.0	39	9	1	0	2	97	110	1.74	57.4	12.2	0.41	57.3	3	60.5	3.00	3	3	5	5	208
MN97561	59.9	27.0	34	6	2	4	12	82	89	1.87	61.2	14.4	0.35	59.6	3	61.5	1.75	3	3	5	4	175

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Crookston
Nursery: AY5

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)
					A	B	C	D	HI	Prot	Ash		Prot	Ash					D	C	G	T	
BACUP	61.4	28.0	20	5	1	3	12	84	85	16.2	1.81	53.2	15.7	0.36	56.9	3	60.0	2.75	2	4	3	6	182
VERDE	57.8	28.3	60	5	1	4	18	77	79	13.8	1.72	64.1	12.5	0.38	55.5	2	54.8	2.50	2	4	6	4	168
2375	59.5	32.8	65	3	1	4	16	79	77	13.9	1.61	64.3	12.7	0.44	55.5	2	57.5	2.50	2	3	3	4	178
MN97563	59.0	28.5	66	3	9	6	10	75	80	13.2	1.77	45.9	11.5	0.37	51.9	2	58.0	3.75	2	3	3	5	172
MN97568	57.4	32.0	73	3	1	3	16	80	74	13.9	1.65	59.6	12.2	0.42	63.7	3	57.5	2.25	2	3	5	5	172
MN97570	55.0	28.9	42	7	2	1	16	81	81	14.6	1.89	54.4	13.0	0.51	57.3	3	62.5	3.00	2	3	3	5	183
MN97571	59.5	30.1	66	2	0	2	9	89	83	13.5	1.64	60.8	12.0	0.38	56.2	3	60.5	3.00	2	3	3	5	182
MN97589	59.8	29.3	64	2	25	13	12	50	61	12.5	1.51	47.9	11.1	0.35	49.6	1	53.5	1.50	1	1	3	1	146
MN97596	59.2	26.7	22	10	0	1	10	89	90	14.7	1.70	58.3	13.9	0.40	55.5	3	59.5	3.25	2	3	6	6	192
MN97598	60.5	29.6	50	3	0	1	13	86	86	15.4	1.71	57.1	13.9	0.39	55.5	2	57.5	2.50	2	3	3	6	182
MN97602	60.6	33.6	76	3	1	2	15	82	85	14.8	1.78	59.4	14.0	0.40	55.0	3	59.0	3.50	2	3	5	6	192
MN97603	59.4	26.0	17	17	0	1	3	96	93	15.3	1.80	55.5	14.7	0.40	57.3	5	62.5	4.50	3	3	3	6	212
MN97604	60.6	34.4	85	1	1	2	12	85	82	15.1	1.69	62.7	14.2	0.38	57.6	3	61.5	3.00	3	3	5	6	186
MN97606	60.4	31.3	71	3	0	2	12	86	85	14.5	1.76	61.9	13.1	0.39	57.3	3	59.0	3.25	3	4	3	6	182
MN97607	59.6	33.3	81	2	1	2	13	84	83	15.0	1.76	63.6	14.0	0.40	58.2	4	60.5	2.75	3	3	5	6	192
MN97608	59.4	32.6	80	2	0	1	17	82	82	15.3	1.73	63.3	14.0	0.40	59.0	4	61.0	2.75	3	4	5	6	202
MN97609	60.5	33.4	81	2	1	2	14	83	84	14.8	1.65	62.2	13.6	0.40	53.8	3	58.0	3.00	2	3	6	6	182
MN97611	60.1	34.2	81	2	1	2	16	81	80	15.3	1.84	62.2	14.2	0.40	57.9	4	60.0	2.50	2	4	6	6	182
MN97612	60.3	32.6	80	2	13	24	23	40	59	15.1	1.67	62.8	13.8	0.41	57.9	3	60.0	2.75	2	4	5	6	192
MN97617	60.6	30.9	71	3	1	5	24	70	70	13.5	1.60	62.2	12.6	0.41	55.3	2	59.0	2.25	2	4	3	5	175
MN97623	61.0	32.3	72	1	2	10	26	62	67	13.7	1.76	63.7	12.2	0.38	51.3	2	55.0	3.00	2	3	6	5	190
MN97626	60.2	31.3	72	2	1	7	29	63	69	13.8	1.73	62.8	12.6	0.40	51.6	2	55.5	3.00	2	3	6	5	188
MN97636	55.5	28.6	57	3	2	4	26	68	72	12.9	1.81	58.6	11.8	0.50	52.6	2	58.5	4.00	2	3	6	5	182
MN97637	57.8	34.5	78	2	1	6	25	68	69	13.8	1.83	63.3	11.8	0.41	53.2	2	57.0	3.00	2	1	3	5	172
MN97638	57.7	26.6	33	9	1	5	13	81	79	14.6	1.69	58.8	13.0	0.44	55.3	3	57.0	4.50	3	3	6	6	192
MN97645	58.0	31.3	69	4	3	9	23	65	67	13.7	1.73	57.4	12.6	0.43	56.2	2	58.5	2.50	2	3	6	6	202
MN97649	61.3	30.1	81	1	2	8	28	62	67	14.2	1.50	60.8	13.2	0.34	55.0	3	57.0	2.50	3	4	6	6	188
MN97650	59.4	31.8	76	2	2	4	28	66	72	15.4	1.88	60.1	14.4	0.37	57.6	4	59.5	2.50	3	4	6	6	193
MN97651	59.7	30.3	70	3	2	3	13	82	78	14.9	1.72	57.1	13.7	0.40	56.9	4	60.8	2.75	2	5	6	6	192
MN97661	60.1	31.7	81	1	0	5	16	79	81	16.0	1.79	58.7	14.9	0.39	56.5	4	60.5	2.75	2	3	3	5	195
MN97664	61.0	30.6	78	2	1	2	14	83	85	15.6	1.77	58.1	14.5	0.37	56.9	4	58.8	2.75	2	4	3	5	185
MN97665	61.8	32.9	74	1	3	10	29	58	70	14.4	1.87	52.8	14.1	0.35	51.9	1	56.0	2.00	1	4	1	4	165
MN97668	61.3	31.4	81	2	0	1	17	82	82	15.5	1.74	63.6	14.8	0.38	56.5	4	60.5	2.75	3	3	6	6	212
MN97670	61.0	31.2	82	1	1	2	15	82	82	15.9	1.73	59.6	15.1	0.37	54.6	3	56.8	3.00	3	5	3	6	220
MN97680	57.7	30.2	62	4	65	20	7	8	28	12.1	1.67	28.4	11.0	0.37	48.9	1	60.5	2.50	2	3	6	6	172
MN97685	58.8	30.4	53	4	0	1	9	90	81	13.6	1.72	59.2	12.1	0.40	56.5	3	60.5	2.50	2	3	6	6	172

USDA/ARS Wheat Quality Laboratory

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Morris
Nursery: AY5

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)
					A	B	C	D		Prot	Ash		Prot	Ash					D	C	C	G	T
BACUP	60.9	27.3	32	6	2	0	9	89	99	48	15.9	1.80	57.3	15.0	0.39	57.9	4	62.0	3	3	3	3	5
VERDE	57.4	30.5	72	4	0	1	14	85	95	65	14.6	1.52	63.9	13.1	0.35	55.5	2	55.5	3	3	3	5	190
2375	58.8	31.7	65	2	1	4	10	85	97	63	13.9	1.46	62.8	12.7	0.35	55.3	3	55.0	3	3	6	4	188
MN97563	57.8	27.4	65	4	5	5	4	86	98	41	13.5	1.66	45.0	11.9	0.34	51.6	3						
MN97589	55.3	27.6	60	4	22	10	10	58	67	36	12.6	1.59	39.3	11.3	0.31	48.9	1	48.8	2	4	3	1	148
MN97596	58.6	25.8	18	12	1	2	3	94	107	53	14.4	1.74	52.1	13.3	0.21	56.5	3	58.5	3	3	3	5	182
MN97598	60.2	28.4	41	4	1	2	3	94	110	55	15.8	1.62	59.0	15.0	0.34	55.8	3	59.0	3	3	4	5	222
MN97602	59.9	31.0	52	2	0	0	6	94	105	63	15.3	1.64	60.1	13.9	0.37	53.2	3	56.5	3	3	4	5	195
MN97603	59.3	27.2	29	10	0	1	2	97	110	56	14.9	1.75	54.8	13.9	0.37	57.3	5	63.5	3	3	3	5	185
MN97604	57.4	31.3	76	2	1	1	6	92	103	54	15.5	1.62	58.0	14.2	0.37	56.9	4	58.8	3	3	3	5	194
MN97606	59.9	29.3	72	3	0	1	6	93	101	56	14.7	1.42	59.6	13.2	0.33	54.3	4	56.5	3	5	6	4	185
MN97607	57.3	30.6	72	3	1	4	12	83	90	57	15.1	1.67	57.7	13.7	0.38	56.5	4	58.5	3	3	5	5	193
MN97608	58.1	31.6	80	1	0	0	9	91	97	57	15.5	1.69	61.3	14.2	0.36	55.8	4	60.0	3	3	3	6	202
MN97609	58.6	32.2	82	1	1	0	8	91	101	57	15.7	1.52	62.2	14.6	0.33	55.8	4	58.0	3	5	3	5	200
MN97611	57.0	30.6	77	2	0	1	6	93	99	55	15.1	1.80	56.9	13.7	0.37	55.5	4	59.5	3	5	3	6	200
MN97612	57.4	30.2	73	4	1	1	9	89	95	59	15.2	1.75	56.2	13.9	0.38	53.2	3	57.0	3	3	3	6	195
MN97617	59.0	31.2	76	1	1	3	17	79	87	50	14.5	1.51	59.4	13.1	0.33	53.2	2	55.0	3	5	3	6	192
MN97623	59.5	31.0	75	3	3	5	17	75	87	38	13.6	1.59	60.1	12.6	0.34	52.6	2	54.8	3	6	3	6	180
MN97626	59.4	32.6	78	2	0	4	13	83	92	58	14.1	1.65	60.6	13.0	0.34	52.2	2	56.5	3	3	6	4	181
MN97636	54.3	28.6	48	4	1	3	9	87	98	41	13.6	1.65	58.9	12.2	0.43	53.2	3	55.0	3	3	6	5	185
MN97637	54.9	29.6	63	5	0	3	10	87	97	54	13.7	1.61	60.7	12.1	0.40	54.6	3	56.8	3	4	3	4	183
MN97638	57.4	26.9	39	5	1	0	4	95	111	61	15.3	1.84	57.3	13.6	0.42	55.3	3	58.5	3	5	3	4	198
MN97645	55.7	28.2	44	6	1	1	10	88	95	45	14.1	1.72	58.4	13.4	0.46	57.3	3	59.0	3	5	3	5	192
MN97649	58.7	28.4	68	4	2	2	8	88	95	39	14.6	1.56	56.7	13.6	0.33	55.8	3	58.0	3	4	3	5	193
MN97650	59.0	30.2	76	1	1	2	8	89	98	47	15.3	1.41	61.6	14.5	0.37	55.8	4	58.0	3	3	3	5	195
MN97651	59.0	29.6	68	2	1	1	6	92	101	49	15.5	1.49	59.2	14.4	0.33	55.5	3	57.5	3	5	3	5	208
MN97661	59.4	30.4	79	1	0	1	3	96	107	57	16.2	1.76	67.0	14.7	0.46	57.6	4	59.0	3	3	5	5	212
MN97664	59.8	29.4	77	2	0	1	6	93	104	55	15.8	1.66	61.5	14.5	0.36	55.5	4	59.5	3	3	3	5	222
MN97665	60.5	33.3	85	1	1	7	14	78	89	45	15.0	1.48	60.1	14.4	0.30	55.8	2	58.0	3	5	3	6	200
MN97668	60.6	32.0	81	1	1	2	6	91	96	50	15.4	1.70	59.5	14.2	0.36	56.2	4	58.5	3	3	3	6	205
MN97670	60.5	29.6	79	1	0	0	3	97	100	54	15.8	1.68	60.6	14.8	0.36	55.3	4	59.0	3	2	3	6	215
MN97680	56.5	31.1	68	3	37	12	8	43	53	13	12.3	1.51	39.0	11.1	0.33	49.2	2	53.0	2	3	5	4	170
MN97685	58.0	30.5	54	3	0	1	6	93	102	59	14.4	1.64	61.2	12.5	0.38	53.2	2	57.0	2	3	6	5	172

USDA/ARS Wheat Quality Laboratory
Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: St. Paul
Nursery: AY5

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores					Loaf Vol (cc)				
					A					Prot			Ash						Prot		Ash		D		C	C	G	T
					A	B	C	D		HI	HI		Prot	Ash					Prot	Ash								
BACUP	60.1	27.1	13	11	2	3	7	88	94	57	17.3	1.98	53.2	16.6	0.46	59.0	4	63.0	2.50	3	4	5	5	195				
VERDE	56.9	28.9	60	5	0	2	11	87	84	64	14.9	1.79	60.6	13.0	0.35	55.0	3	57.0	3.00	3	5	6	5	196				
2375	57.0	29.7	44	8	1	4	6	89	94	66	15.4	1.91	57.1	13.6	0.39	56.5	4	60.5	3.50	3	3	3	5	202				
MN97563	57.0	26.2	45	9	7	7	10	76	91	39	14.2	1.92	44.2	12.4	0.37	48.2	2	56.5	3.75	3	3	6	4	178				
MN97568	56.4	30.9	63	5	1	1	7	91	98	73	15.1	1.80	59.3	13.1	0.43	57.3	4	59.0	3.00	3	5	3	5	179				
MN97570	52.8	27.8	33	13	2	4	8	86	91	57	15.2	2.16	51.4	13.7	0.62	58.2	5	60.5	3.00	3	2	3	5	195				
MN97571	55.7	27.4	46	7	1	1	5	93	97	68	14.6	1.92	56.5	12.7	0.41	56.2	4	60.5	3.00	3	5	3	5	195				
MN97589	59.2	26.2	48	2	26	10	17	47	62	33	13.5	1.76	46.5	12.0	0.44	48.5	1	52.5	2.00	2	1	3	4	144				
MN97596	58.0	28.3	25	12	0	2	9	89	98	63	15.9	1.97	50.9	14.5	0.50	55.0	4	59.0	2.75	3	4	5	6	205				
MN97598	58.8	27.5	31	8	1	1	3	95	100	62	16.8	2.18	50.0	15.7	0.43	58.2	4	62.5	3.00	3	6	4	6	212				
MN97602	58.6	29.8	59	3	0	2	4	94	99	70	16.7	2.07	56.7	15.5	0.44	57.3	5	61.0	3.75	3	5	4	6	210				
MN97603	60.3	26.2	17	19	0	1	4	95	106	61	16.2	2.10	54.6	15.2	0.41	58.2	7	62.5	4.00	3	3	5	6	212				
MN97604	56.1	29.2	57	6	1	2	5	92	95	69	15.7	1.94	57.8	14.5	0.41	56.5	5	54.5	5.50	3	5	3	6	221				
MN97606	58.2	28.1	48	8	1	3	6	90	94	59	15.5	1.82	55.8	14.0	0.39	52.2	3	58.5	4.00	3	4	5	5	193				
MN97607	58.0	29.2	62	4	1	2	8	89	88	61	16.0	1.88	55.8	14.1	0.39	55.3	5	59.0	3.50	3	4	5	5	200				
MN97608	56.8	28.8	61	5	2	1	10	87	83	58	15.4	2.01	54.4	14.0	0.41	55.5	5	59.5	3.50	3	3	3	5	205				
MN97609	56.7	29.0	62	4	1	2	11	86	86	61	16.0	1.99	54.4	14.4	0.41	54.6	4	60.8	3.75	3	3	6	6	192				
MN97611	56.5	28.9	60	5	1	2	6	91	89	66	15.8	1.94	57.2	14.5	0.47	58.6	4	60.8	2.75	3	3	5	6	200				
MN97612	56.1	28.3	60	6	1	2	8	89	91	67	15.7	2.00	53.6	14.3	0.42	53.8	3	58.0	3.75	3	3	3	4	210				
MN97617	60.0	31.4	73	4	0	4	13	83	88	59	15.2	1.67	56.0	13.8	0.37	56.2	3	58.5	2.00	3	6	3	4	198				
MN97623	60.7	31.0	66	2	1	2	14	83	95	60	14.6	1.80	53.2	13.0	0.33	51.6	2	53.5	2.50	3	3	3	4	188				
MN97626	57.8	27.9	50	4	1	1	10	88	99	61	15.2	1.87	56.0	13.6	0.36	53.2	3	57.0	3.00	3	3	3	4	200				
MN97636	53.3	28.1	41	9	3	2	11	84	90	65	15.1	2.05	52.3	13.5	0.57	54.3	4	60.8	3.75	3	4	6	4	200				
MN97637	52.3	27.7	44	11	3	4	12	81	85	62	15.0	2.02	53.9	13.2	0.48	55.8	4	60.0	3.00	3	1	3	5	190				
MN97638	55.8	25.0	26	11	1	1	7	91	100	65	16.2	2.11	49.3	14.2	0.51	50.8	2	56.8	4.00	3	5	3	5	211				
MN97645	53.3	24.6	21	17	1	3	9	87	95	48	15.1	2.12	53.3	14.0	0.56	59.0	3	63.0	2.75	3	4	5	5	188				
MN97649	58.2	26.3	48	6	1	1	8	90	91	62	15.4	1.84	53.5	14.4	0.35	56.5	5	58.5	3.50	3	1	3	5	211				
MN97650	57.2	29.1	64	2	0	4	10	86	89	54	16.5	1.92	52.5	15.5	0.38	60.8	5	62.8	2.75	3	4	5	5	192				
MN97651	56.9	27.4	56	6	2	1	2	95	104	62	16.1	1.96	53.0	14.9	0.45	60.8	5	62.8	3.25	3	3	4	6	222				
MN97661	59.8	29.7	70	2	1	3	4	92	98	63	16.4	1.97	56.0	15.5	0.41	61.1	5	63.0	3.75	3	3	6	222	222				
MN97664	59.3	29.4	73	2	0	1	4	95	103	61	16.1	1.84	58.1	14.9	0.42	60.0	5	61.0	3.50	3	3	6	223	223				
MN97665	59.9	31.1	70	4	1	7	21	71	81	44	15.3	1.88	50.2	14.5	0.34	59.0	3	61.0	2.00	3	4	3	6	209				
MN97668	59.8	28.0	73	2	1	0	2	97	101	63	16.2	1.87	56.7	14.9	0.37	58.2	5	60.5	4.50	3	4	3	6	214				
MN97670	58.6	27.7	66	3	3	2	5	90	96	61	16.0	1.93	53.9	15.0	0.37	58.2	5	60.5	4.00	3	4	4	6	240				
MN97680	55.5	28.7	48	10	38	13	11	38	52	13	13.5	1.83	32.4	11.4	0.37	52.2	2	60.5	4.00	3	4	5	4	182				
MN97685	56.7	29.5	32	8	0	2	3	95	102	64	15.3	2.04	54.6	13.1	0.42	56.5	3	62.5	3.00	3	3	3	5	189				

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Crookston
Nursery: AY6

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour		Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores				Loaf Vol (cc)
					A	B	C	D	HI	Prot	Ash	Ext (%)	Prot	Ash	Ext (%)					D	C	C	G	T
BACUP	59.0	26.3	15	15	3	5	12	80	83	52	17.0	1.98	49.3	16.3	0.42	59.0	3	59.0	2.25	3	4	3	6	176
VERDE	57.6	27.6	58	6	1	6	14	79	74	60	14.1	1.77	62.7	12.6	0.39	58.2	3	56.5	3.00	3	3	6	5	190
2375	57.6	29.9	47	6	2	6	19	73	79	60	14.6	1.75	59.3	13.2	0.41	57.3	3	59.0	2.75	3	3	5	5	192
MN97686	60.6	32.4	70	2	1	4	16	79	78	61	14.7	1.62	59.9	13.1	0.38	55.0	3	57.0	2.75	3	3	5	5	180
MN97693	58.6	28.2	67	3	1	8	20	71	76	55	14.4	1.73	55.6	13.5	0.37	57.6	3	59.5	3.50	3	3	6	5	208
MN97694	59.2	28.5	59	5	0	3	10	87	80	54	14.4	1.73	59.2	13.1	0.40	50.8	1	60.0	3.50	1	4	6	6	200
MN97695	61.0	29.0	70	2	1	9	22	68	71	51	14.0	1.64	59.2	14.0	0.37	55.5	2	57.5	3.50	2	3	6	6	185
MN97707	58.8	31.9	74	4	7	14	3	6	21	10	13.1	1.84	38.2	11.0	0.33	55.5	2	55.5	2.00	1	3	3	3	162
MN97712	56.6	26.1	40	13	75	11	5	9	23	7	13.6	1.66	32.0	12.1	0.34	50.8	1	54.8	2.75	2	4	3	2	172
MN97722	58.5	26.6	40	11	33	28	18	21	44	2	14.5	1.82	34.6	12.2	0.34	51.3	1	54.5	2.50	2	5	5	5	182
MN97729	55.3	23.3	17	20	3	4	12	81	79	41	14.1	1.92	52.1	13.4	0.51	56.2	3	58.5	2.75	2	1	3	6	190
MN97730	55.8	27.1	39	12	2	3	7	88	86	41	14.1	1.72	60.2	12.7	0.48	55.3	2	58.5	3.00	2	3	5	6	205
MN97733	56.8	32.5	64	4	71	11	3	15	25	20	13.8	1.79	34.9	12.8	0.37	52.6	2	58.8	2.75	2	4	3	4	170
MN97736	59.9	26.5	43	7	2	8	23	67	72	44	13.8	1.74	56.6	13.1	0.41	52.2	2	56.5	2.75	3	4	5	4	183
MN97746	54.3	24.9	25	11	11	8	16	65	68	35	14.3	1.52	44.0	13.4	0.46	54.3	3	58.5	3.25	3	4	3	5	198
MN97750	57.8	29.8	69	3	38	25	14	23	45	12	14.5	1.91	32.1	12.5	0.38	55.8	3	60.0	2.00	2	4	1	5	178
MN97754	56.2	27.7	57	6	2	3	21	74	75	37	13.8	1.78	60.7	12.2	0.49	57.3	3	57.0	2.50	1	1	3	5	186
MN97756	59.1	26.9	56	4	0	1	7	92	81	47	14.2	1.72	57.9	12.9	0.44	53.8	3	56.0	3.00	3	4	5	5	190
MN97761	57.6	24.8	28	14	2	3	9	86	77	60	14.1	1.59	57.8	13.4	0.38	55.0	3	57.0	2.50	3	3	5	5	181
MN97762	60.3	32.5	77	1	27	11	24	38	52	27	13.9	1.70	48.1	12.7	0.37	50.2	1	54.5	2.50	2	4	5	5	180
MN97773	59.5	30.5	57	6	2	8	29	61	66	43	14.7	1.94	51.2	13.9	0.44	51.3	2	55.0	3.25	3	6	6	6	194
MN97800	58.3	29.6	62	5	1	8	23	68	70	54	14.0	1.71	57.9	12.7	0.41	55.8	3	58.0	2.25	3	4	3	4	178
MN97803	56.4	27.0	47	8	1	3	14	82	76	56	15.5	1.74	58.4	14.2	0.45	55.8	3	58.0	3.00	3	3	5	5	205
MN97822	59.4	28.0	45	7	1	3	13	83	78	52	14.3	1.74	50.7	13.5	0.42	53.2	4	57.0	4.75	3	3	3	6	220
MN97835	57.7	24.9	40	9	64	16	11	9	29	8	12.8	1.69	30.4	11.2	0.35	49.6	1	53.5	2.75	2	3	3	4	170
MN97837	58.4	28.9	59	4	1	3	17	79	76	43	13.2	1.65	63.6	12.2	0.45	52.9	2	56.8	2.75	2	4	3	4	188
MN97846	60.5	31.7	77	1	47	22	14	17	39	10	13.1	1.65	44.4	11.4	0.30	48.9	1	54.0	2.50	2	3	6	4	175
MN97847	58.0	28.5	52	8	66	20	6	8	28	11	13.4	1.73	32.4	11.2	0.34	49.6	1	53.5	2.25	1	4	1	4	168
MN97849	59.0	29.4	49	5	2	4	23	71	69	51	13.3	1.60	58.0	11.1	0.41	49.2	2	57.0	3.25	2	3	3	5	170
MN97852	62.6	26.4	39	16	58	23	13	6	30	14	14.0	1.75	35.5	12.5	0.43	54.3	3	54.5	3.25	3	6	4	4	182
MN97853	55.8	27.3	51	8	69	16	8	7	26	10	12.9	1.77	32.6	11.2	0.38	51.6	2	55.5	3.75	2	3	5	4	179
MN97854	55.9	29.9	70	4	2	4	20	74	71	48	15.4	1.90	54.3	14.1	0.37	55.5	5	59.5	4.00	2	5	6	6	201
MN97855	57.8	29.8	61	7	1	3	21	75	73	74	14.6	1.79	58.4	12.6	0.46	52.9	2	60.8	3.00	2	4	3	6	192
MN97856	58.2	30.2	61	6	1	6	19	74	73	64	14.4	1.87	56.0	12.4	0.52	51.3	2	56.5	2.50	2	3	3	5	180

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Morris
Nursery: AY6

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Bake Pat	Mix Time	Rating Scores				Loaf Vol (cc)		
										Prot	Ash		Prof	Ash				Prof	D	C	C		T	
					A	B	C	D																HI
BACUP	61.0	28.3	25	8	3	4	8	85	89	46	15.5	1.86	55.8	14.8	0.39	56.2	3	59.5	2.75	3	5	5	215	
VERDE	61.8	31.4	79	2	2	6	15	77	83	50	14.1	1.90	62.4	12.5	0.35	52.6	2	56.0	2.75	3	6	5	190	
	2375	58.7	32.7	66	2	3	7	16	74	83	47	13.5	1.66	60.0	11.9	0.37	50.8	2	52.8	3.25	3	3	5	182
MN97686	59.7	31.6	75	2	3	3	12	82	84	51	14.3	1.76	62.1	12.8	0.39	51.9	2	58.0	2.75	3	5	3	180	
MN97693	58.0	31.3	78	2	1	5	16	78	85	45	14.2	1.75	59.8	12.8	0.38	52.2	3	56.5	3.50	3	3	5	195	
MN97694	59.1	29.9	70	3	1	2	8	89	93	49	13.7	1.45	58.0	11.9	0.40	51.9	2	58.5	4.25	3	3	5	188	
MN97695	60.3	30.4	76	2	2	5	11	82	87	38	14.2	1.55	59.4	13.2	0.32	53.5	3	55.5	4.00	3	3	6	210	
MN97707	58.6	31.8	89	1	53	11	9	27	39	4	13.5	1.77	35.2	10.9	0.31	44.9	1	52.8	3.00	3	3	4	168	
MN97712	58.4	28.6	56	3	58	10	10	22	36	8	13.4	1.83	40.6	11.6	0.32	49.6	1	53.5	3.25	2	3	3	4	178
MN97722	58.7	27.2	73	3	23	21	16	40	56	12	13.9	1.81	35.5	12.6	0.34	48.2	1	54.5	3.25	3	3	5	4	182
MN97729	58.0	25.4	31	9	3	4	9	84	96	44	14.0	1.77	51.4	13.1	0.42	51.6	2	56.8	3.25	3	3	3	5	190
MN97730	58.1	29.1	54	6	2	2	5	91	94	43	14.1	1.74	55.3	12.5	0.41	55.0	2	57.0	2.75	3	3	5	192	
MN97733	54.7	30.2	56	5	47	10	11	32	43	19	14.5	1.73	35.3	13.0	0.33	56.2	2	56.5	2.00	2	3	6	4	172
MN97736	59.4	30.4	67	4	1	4	16	79	89	36	14.6	1.59	56.0	13.3	0.36	53.2	1	53.0	2.75	2	3	3	5	185
MN97746	53.9	27.4	50	7	6	9	15	70	80	32	13.9	1.74	47.9	12.8	0.38	56.5	4	58.5	3.75	3	3	3	5	211
MN97750	58.0	31.6	78	2	32	16	15	37	53	23	14.7	1.79	30.4	12.8	0.34	56.5	3	60.5	2.25	3	3	6	6	191
MN97754	57.8	30.3	72	3	3	5	12	80	85	48	14.2	1.69	59.3	13.0	0.41	58.2	3	58.5	2.25	3	4	6	6	203
MN97756	58.2	28.1	66	4	2	0	11	87	90	47	14.3	1.93	56.4	12.8	0.44	53.2	2	54.5	3.00	3	4	6	6	191
MN97761	58.3	27.1	53	4	2	1	9	88	90	52	14.2	1.55	58.9	12.8	0.32	54.3	2	56.5	2.25	3	3	6	5	201
MN97762	58.1	32.7	79	2	15	4	18	63	74	32	14.4	1.78	48.2	13.0	0.35	50.2	1	54.5	2.50	3	3	3	4	193
MN97773	58.5	32.1	70	3	2	5	18	75	84	43	14.2	1.97	51.6	13.2	0.44	55.5	3	59.5	2.75	3	3	5	6	192
MN97800	57.4	31.4	72	3	1	5	13	81	88	48	14.3	1.82	59.0	12.9	0.39	57.3	3	57.0	2.25	3	3	5	5	209
MN97803	58.1	31.5	75	2	1	3	13	83	93	55	14.9	1.65	58.1	13.6	0.40	56.5	3	59.5	2.25	3	3	5	5	198
MN97822	58.2	30.1	68	2	1	1	10	88	95	52	14.3	1.81	55.3	13.1	0.41	55.5	4	59.5	4.75	3	3	3	6	190
MN97835	57.4	26.0	52	2	53	11	7	29	40	14	12.4	1.72	33.0	10.8	0.33	56.9	3	56.8	2.75	3	5	6	4	178
MN97837	58.1	31.4	76	2	0	7	20	73	80	40	13.6	1.76	60.1	12.3	0.40	55.8	3	60.0	2.25	2	3	5	5	182
MN97846	57.1	27.8	64	4	59	7	11	23	30	14	13.5	1.58	34.0	11.3	0.31	49.6	2	55.0	3.00	2	3	3	5	190
MN97847	55.5	25.1	48	8	34	16	11	39	54	7	13.5	1.62	35.8	11.8	0.35	51.6	2	55.5	2.75	2	3	6	4	182
MN97849	57.4	29.2	52	8	3	2	8	87	93	56	12.8	1.79	56.8	11.0	0.48	49.6	2	55.0	3.25	2	3	3	5	165
MN97852	57.2	32.5	78	3	29	24	16	31	50	11	13.9	1.77	36.2	11.8	0.38	52.2	2	54.5	2.75	2	3	3	4	183
MN97853	56.0	34.5	82	2	51	13	9	27	38	13	13.4	1.67	55.7	11.7	0.32	51.6	2	55.5	3.00	2	5	6	4	182
MN97854	56.5	32.6	81	1	0	1	11	88	89	47	14.7	1.69	57.8	13.4	0.47	54.6	4	58.8	4.00	3	3	5	6	193
MN97855	59.5	34.2	82	1	1	1	13	85	85	70	14.6	1.71	60.4	13.0	0.44	54.3	2	58.5	2.50	2	3	3	5	176
MN97856	57.5	29.2	64	4	0	1	8	91	99	52	14.3	1.65	59.9	12.8	0.44	52.6	2	58.8	2.25	2	5	3	5	180

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: St. Paul
Nursery: AY6

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Time	Rating Scores				Loaf Vol (cc)		
					A	B	C	D		HI	Prot		Ash	Prot				Ash	D	C	G		C	T
BACUP	61.1	27.4	18	7	3	6	8	83	95	50	17.0	1.87	56.5	16.5	0.42	60.8	4	62.8	3.00	3	3	3	5	223
VERDE	57.4	27.9	58	5	0	3	10	87	93	62	13.9	1.77	65.3	12.8	0.41	58.2	3	62.5	2.75	3	3	3	4	198
2375	58.1	32.5	55	5	0	3	10	87	95	64	14.9	1.82	56.6	13.2	0.42	57.6	3	60.8	3.00	3	5	3	5	200
MN97686	60.2	30.8	64	2	0	1	7	92	93	71	15.1	1.85	60.6	13.7	0.39	56.9	3	58.8	3.25	3	5	3	6	180
MN97693	58.4	27.5	62	4	0	2	7	91	99	57	14.5	1.79	56.2	13.4	0.40	59.6	5	57.5	3.25	3	3	5	5	200
MN97694	60.5	29.0	58	5	1	1	3	95	107	60	14.0	1.76	51.4	12.5	0.42	58.2	4	60.5	3.25	3	3	3	6	200
MN97695	61.8	29.4	67	3	1	5	17	77	88	46	14.0	1.67	65.4	13.2	0.34	59.3	5	57.0	3.25	3	3	3	6	182
MN97707	58.4	29.9	61	5	39	10	12	39	48	10	13.8	1.91	40.3	11.9	0.34	55.5	3	57.5	2.25	3	6	3	3	174
MN97712	57.4	27.3	39	10	51	9	10	30	39	4	14.5	1.98	34.1	12.6	0.34	56.9	3	54.5	2.25	3	6	3	4	176
MN97722	58.9	25.2	27	11	15	21	15	49	63	13	14.1	1.88	32.1	12.2	0.32	54.3	4							
MN97729	57.5	24.9	18	15	2	2	9	87	94	44	14.9	1.92	54.5	13.9	0.46	59.3	4	57.0	2.75	3	4	5	4	185
MN97730	58.3	29.9	50	8	2	1	6	91	94	54	14.6	1.98	55.5	12.5	0.44	57.3	3	57.0	2.75	3	6	5	198	
MN97733	53.3	28.8	40	11	53	10	10	27	38	19	15.1	1.89	33.7	14.0	0.35	55.3	3	59.0	2.75	3	3	3	5	190
MN97736	58.1	27.5	41	8	2	4	13	81	86	40	14.9	1.85	49.8	13.2	0.39	57.6	3	55.5	3.00	3	5	3	5	198
MN97746	57.0	26.9	41	9	8	6	6	80	87	31	14.7	1.93	46.1	13.9	0.41	51.3	2	59.0	4.00	3	3	5	5	206
MN97750	56.7	28.6	58	6	27	14	16	43	60	25	15.1	1.89	25.7	13.1	0.35	52.6	2							
MN97754	56.9	28.1	58	6	2	4	11	83	85	42	14.7	1.89	58.1	12.9	0.44	58.6	3	58.8	2.50	3	3	3	5	204
MN97756	56.6	26.6	50	8	1	2	9	88	93	41	15.4	2.01	53.5	13.8	0.46	50.8	2	56.8	4.00	3	4	3	5	202
MN97761	59.0	27.3	43	9	2	2	9	87	96	55	14.9	1.70	60.4	13.6	0.35	57.9	3	60.0	2.25	3	3	3	5	216
MN97762	56.5	28.2	65	4	12	6	12	70	78	32	14.8	2.10	44.7	13.5	0.37	53.2	2	57.0	2.75	3	3	5	5	210
MN97773	58.2	28.2	52	6	2	5	14	79	87	30	15.0	1.95	45.4	13.6	0.43	49.2	2	57.0	4.50	3	5	3	5	200
MN97800	57.4	29.2	57	6	1	3	11	85	93	48	14.5	1.88	57.1	13.0	0.40	53.2	2	57.0	2.75	3	3	5	5	200
MN97803	57.4	29.7	57	5	0	1	11	88	95	58	15.3	1.96	58.8	14.0	0.40	59.3	3	61.0	2.75	3	5	3	5	212
MN97822	60.0	28.9	58	5	0	2	6	92	106	49	14.8	1.84	51.6	13.3	0.37	58.2	5	58.5	4.00	3	6	3	5	190
MN97835	57.4	25.4	40	10	39	19	15	27	45	10	13.2	1.69	35.3	11.1	0.34	53.8	2	56.0	3.00	3	3	5	5	182
MN97837	57.4	30.4	58	5	1	3	11	85	95	45	14.4	2.01	57.6	12.7	0.41	57.6	3	57.5	2.25	3	5	3	4	193
MN97846	54.9	26.6	42	7	27	16	15	42	55	7	14.4	1.77	35.8	12.5	0.33	57.3	3	55.0	2.75	2	5	3	4	175
MN97847	52.2	24.1	29	13	30	19	14	37	54	17	14.0	1.97	30.4	12.2	0.37	54.3	2	60.5	2.50	2	3	4	4	185
MN97849	55.8	27.8	30	13	0	0	4	96	103	57	14.2	1.74	59.4	11.7	0.49	53.5	2	59.5	3.25	3	3	3	5	170
MN97852	54.2	28.3	50	10	0	1	7	92	103	59	14.1	1.81	44.7	12.2	0.40	54.3	3	54.5	3.00	3	3	3	4	190
MN97853	55.1	29.9	64	6	30	16	11	43	55	10	13.3	1.66	48.7	11.8	0.39	51.9	2	56.0	3.00	2	3	3	4	176
MN97854	55.1	28.3	69	4	1	1	1	97	109	60	14.8	1.86	57.1	13.0	0.40	53.8	4	60.0	5.25	4	3	3	5	196
MN97855	57.3	30.0	57	8	0	0	5	95	99	65	14.5	1.84	56.0	12.2	0.44	50.8	2	58.8	3.00	3	3	3	5	182
MN97856	56.3	27.2	52	7	0	1	3	96	107	46	14.0	1.75	55.3	12.3	0.35	48.5	2	56.5	4.25	3	6	5	5	182

Section V

Advanced Yield Trials – Minnesota

– 1999 Crop

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Minnesota

Crookston, MN, AY1		Wheat					Wheat					Flour					Mix		Peak		Bake		Mix		Dough Char				Loaf	
Variety	TW lb/bu	KWT gm	LG %	SM %	Pro 14%	Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Mix Pat	Time min	Abs %	Time min	DC	CC	CG	CT	Vol cc								
CHRIS	55.1	22.2	36	12	17.4	8.1	84	1.93	0.646	14.6	60.0	13.6	59.3	4	4.0	59.0	2.8	3	5	5	4	210								
MARSHALL	57.1	25.8	49	9	14.7	8.6	77	1.80	0.479	13.0	63.2	14.0	55.3	3	3.0	55.0	2.8	3	3	6	1	194								
SHARPSHOOTER	59.4	28.7	57	5	15.9	8.4	72	1.81	0.417	13.9	62.4	14.0	58.6	3	4.3	58.8	3.0	3	3	6	4	210								
NORM	57.4	30.0	67	5	15.5	8.3	77	1.75	0.452	12.6	60.4	14.4	56.9	4	7.8	58.8	4.5	3	3	6	4	200								
VERDE	56.5	24.8	57	10	15.5	8.4	85	1.94	0.499	13.1	64.0	14.0	57.4	3	7.3	57.5	4.3	3	3	6	4	201								
BACUP	61.0	26.0	10	9	18.1	8.4	79	1.81	0.391	15.3	55.0	14.0	58.6	3	4.5	58.8	2.8	3	3	5	5	202								
GRANDIN	56.8	26.7	63	6	16.5	8.1	90	1.77	0.441	14.0	61.1	13.8	57.3	3	6.3	57.0	3.5	3	3	6	4	203								
KULM	58.7	27.5	57	6	16.8	8.2	77	1.73	0.411	14.2	56.7	14.1	58.2	4	6.0	58.5	3.5	2	3	6	4	201								
KEENE	57.4	28.6	57	6	16.5	8.2	85	1.74	0.429	14.0	57.8	13.8	57.3	4	8.0	59.0	5.3	3	5	3	4	220								
2375	58.7	29.0	48	8	16.1	8.0	87	1.82	0.440	13.7	61.4	13.8	59.0	4	5.3	59.0	3.0	3	3	3	5	204								
ARGENT	56.1	27.5	63	6	17.2	8.4	94	1.76	0.434	14.9	60.3	13.6	59.0	4	6.8	59.0	4.0	3	3	6	5	204								
PARSHALL	59.9	26.8	51	7	16.2	8.1	79	1.66	0.384	13.8	60.0	14.0	58.2	4	5.8	58.5	3.8	3	5	3	5	208								
REEDER	58.2	27.1	50	9	16.9	8.1	80	1.75	0.411	14.6	57.4	13.5	57.6	3	4.3	57.5	3.0	3	4	6	4	200								
SHARP	57.4	27.8	54	5	16.0	8.4	77	1.70	0.413	14.0	54.5	14.1	58.2	3	4.3	58.5	3.0	3	3	6	5	202								
OXEN	54.2	23.5	32	12	15.9	8.1	83	2.15	0.385	13.7	58.3	14.2	58.2	4	7.8	58.5	4.8	3	3	4	5	210								
FORGE	56.2	25.8	49	10	15.3	8.4	67	1.84	0.376	13.2	51.2	14.0	60.5	3	4.3	60.5	3.0	3	3	3	5	218								
INGOT	59.3	27.9	54	7	16.4	8.2	80	1.77																						
RUSS	56.2	27.9	63	6	16.0	8.2	87	1.83	0.428	13.6	56.7	14.3	60.5	5	6.5	56.5	4.8	3	3	3	6	200								
EMBER	58.0	26.2	38	12	14.9	8.2	85	1.63	0.395	12.5	53.1	14.5	55.3	3	10.0	56.5	5.8	4	4	6	5	182								
LARS	55.2	27.0	62	7	15.2	8.1	85	1.84	0.452	12.7	54.0	14.9	56.2	4	8.0	56.5	5.3	3	4	6	5	200								
HAMER	55.8	27.4	67	4	15.1	8.2	74	1.86																						
GUNNER	56.7	23.3	25	15	17.3	8.2	91	1.80	0.517	14.8	52.1	14.2	60.0	4	4.3	60.0	3.5	3	4	5	5	205								
NORA	55.8	25.6	16	16	17.2	8.4	72	2.18	0.562	15.2	44.8	13.6	57.9	3	6.0	60.0	4.5	4	3	5	5	201								
HAGER	56.4	29.7	60	6	16.2	8.2	81	1.75	0.417	14.2	50.9	14.2	58.2	5	8.0	58.5	5.0	3	3	3	5	222								
IVAN	58.9	26.8	53	5	14.6	8.4	74	1.68	0.516	11.9	59.2	14.6	55.3	2	6.8	55.0	4.0	2	3	3	5	191								
N93-0119	56.5	25.6	38	13	16.5	8.1	99	1.78	0.422	13.3	53.8	14.5	57.9	3	5.8	58.0	3.5	3	3	5	5	200								
HJ98	57.4	25.8	27	11	15.0	8.4	80	1.78	0.552	13.0	55.5	13.8	57.6	3	6.3	57.5	4.3	3	5	5	5	208								
MCVEY	55.7	29.5	43	9	14.4	8.0	85	1.85	0.469	12.0	58.8	14.1	57.3	3	5.0	57.0	3.5	2	4	6	6	203								
MN95002	59.3	29.8	59	5	16.0	8.1	85	1.72	0.367	13.7	58.9	13.9	56.9	2	4.3	56.8	2.8	3	3	3	6	218								
MN95229	59.7	30.2	65	5	15.8	8.1	81	1.71	0.390	13.6	57.1	14.0	59.0	4	4.5	59.0	2.8	3	5	5	6	202								
MERCURY	56.2	28.8	62	6	15.3	8.2	81	1.76	0.464	13.1	61.4	14.0	57.9	3	5.8	58.0	3.5	2	3	5	6	213								
AC BARRIE	56.6	24.8	23	10	16.6	7.8	85	1.71	0.459	14.4	62.6	14.4	56.2	3	6.5	56.5	4.0	3	3	3	6	222								
AURORA	54.5	25.3	56	7	15.6	8.2	84	1.78	0.474	13.4	58.5	14.3	55.0	2	11.0	56.0	6.0	3	3	3	5	215								

Advanced Yield Trials - 1999 Crop

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Morris, MN, AY1		TW lb/bu	KWT gm	LG %	Wheat			Wheat			Flour			Mix		Peak Time min	Bake Abs %	Mix Time min	Dough Char			Loaf Vol cc	
Variety					SM %	Pro 14%	Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Pat				DC	CC	CG		CT
CHRIS		57.0	21.6	31	14	16.1	8.1	87	1.78	0.440	14.0	58.4	13.7	58.2	2	3.5	58.5	2.8	3	5	3	4	208
MARSHALL		55.2	23.4	27	19	15.7	8.0	72	1.97	0.488	13.2	54.3	14.2	57.3	2	4.8	57.0	2.8	3	5	3	5	205
SHARPSHOOTER		60.5	30.0	63	5	15.0	7.9	78	1.56	0.361	12.8	59.2	13.9	57.3	2	4.5	57.0	2.5	2	5	5	4	191
NORM		57.0	33.0	73	5	15.4	7.9	76	1.79	0.449	12.0	41.5	16.1	55.8	2	6.8	56.0	3.0	3	5	6	4	196
VERDE		56.7	28.0	65	6	15.2	8.4	88	1.72	0.402	12.7	59.7	14.8	57.6	2	5.5	57.5	3.0	3	5	5	5	186
BACUP		61.8	27.9	36	9	18.1	8.1	80	1.80	0.392	16.1	51.7	13.9	60.8	4	4.0	60.8	4.0	3	5	3	5	225
GRANDIN		58.4	31.4	67	5	15.7	8.0	85	1.64	0.434	13.5	60.7	13.2	58.2	3	5.8	56.5	3.5	3	5	3	5	206
KULM		59.9	29.7	67	6	15.0	8.3	86	1.70	0.368	13.6	59.0	14.3	59.3	4	5.0	59.0	3.5	3	6	5	4	202
KEENE		58.9	31.7	66	5	15.5	8.3	65	1.61	0.406	13.6	53.3	14.3	57.6	3	8.5	56.0	6.0	3	3	3	5	212
2375		58.6	31.5	53	7	15.4	8.3	79	1.68	0.399	12.6	51.2	14.8	55.8	3	5.5	56.0	3.0	3	3	3	4	186
ARGENT		59.5	34.7	78	4	15.8	8.3	95	1.65	0.448	13.6	58.2	13.6	58.2	2	4.5	58.5	3.3	3	3	3	5	198
PARSHALL		61.6	29.8	65	5	15.5	8.3	87	1.77	0.383	13.1	49.5	14.4	56.2	2	6.0	56.5	4.0	3	5	5	6	198
REEDER		59.6	30.4	63	6	15.1	8.1	77	1.67	0.373	13.5	52.6	14.0	56.9	2	5.0	57.5	2.8	3	4	6	5	202
SHARP		59.5	28.6	63	6	15.1	7.9	75	1.61	0.375	13.2	57.4	13.7	59.0	3	4.0	60.5	2.8	3	3	6	6	195
OXEN		57.4	27.4	51	8	15.2	8.5	86	1.61	0.418	13.1	61.4	13.9	58.2	3	7.0	58.5	5.3	3	5	5	6	195
FORGE		59.1	26.7	50	8	14.6	8.6	81	1.78	0.407	12.1	51.7	14.6	57.3	2	5.0	57.0	3.0	3	4	4	6	191
INGOT		60.6	27.9	51	9	15.6	8.1	79	1.79	0.394	13.2	56.5	14.3	58.2	3	6.0	58.5	4.5	3	3	3	6	200
RUSS		58.6	31.2	67	4	15.5	8.1	79	1.73	0.423	13.1	55.2	14.1	59.3	3	6.0	59.0	4.0	3	4	4	6	198
EMBER		59.8	26.7	44	12	14.2	9.0	83	1.60	0.420	12.0	55.0	14.4	56.5	3	8.3	56.5	5.5	3	4	3	5	194
LARS		57.4	30.1	70	5	14.6	8.8	84	1.83	0.450	12.1	51.9	14.4	55.8	3	8.0	56.0	5.0	3	4	3	5	191
HAMER		58.3	34.2	82	2	15.5	8.6	83	1.71	0.429	13.3	64.0	14.5	60.0	3	4.8	60.0	3.0	3	4	4	5	212
GUNNER		58.4	23.3	35	13	16.4	8.6	79	1.90														
NORA		57.5	27.0	30	10	16.2	8.6	75	2.12														
HAGER		55.7	27.4	50	10	14.9	8.6	65	1.84	0.453	13.0	50.5	14.4	57.9	3	7.5	58.0	5.0	3	3	3	5	202
IVAN		59.4	29.2	63	5	13.6	8.9	75	1.77	0.406	11.2	57.3	14.9	51.6	1	10.5	55.5	5.0	3	3	4	5	181
N03-0119		58.2	26.5	53	10	15.4	8.4	86	1.69	0.425	12.1	53.1	14.7	56.9	2	6.0	56.8	3.8	3	5	6	5	190
HJ98		56.2	25.3	33	15	14.7	8.8	66	1.68	0.431	12.9	52.9	14.6	55.8	2	10.0	56.8	5.8	3	3	5	5	202
MCVEY		55.4	27.5	35	10	13.9	8.4	81	1.87	0.461	11.6	56.6	13.9	55.8	3	5.0	56.0	3.5	3	3	5	5	182
MN95002		60.5	28.6	55	8	15.4	8.6	55	1.78	0.372	14.1	52.1	14.3	56.2	2	6.0	56.5	3.0	3	3	6	6	202
MN95229		58.7	27.8	51	10	15.8	8.4	68	1.88	0.419	13.4	51.0	14.4	56.5	3	6.0	57.0	3.5	3	6	6	5	202
MERCURY		58.8	34.4	78	3	14.9	8.7	74	1.75	0.398	12.7	57.3	13.8	56.2	2	5.0	56.5	2.8	3	3	6	5	200
AC BARRIE		57.2	26.1	39	10	16.6	8.1	79	1.84	0.423	14.1	57.1	14.6	55.5	3	9.0	55.5	4.5	3	4	3	5	210
AURORA		56.5	27.9	65	5	14.6	8.5	72	1.80	0.469	12.9	57.1	14.1	55.8	3	10.0	56.0	4.8	3	4	5	5	182

USDA/ARS Wheat Quality Laboratory, Fargo, ND

Advanced Yield Trials - 1999 Crop

Minnesota

Roseau, MN, AY1		TW lb/bu	KWT gm	LG %	SM %	Wheat			Wheat			Wheat			Flour			Mix		Peak Time min	Bake Abs %	Mix Time min	Dough Char			Loaf Vol cc
Variety						Pro 14%	Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Mix Pat	DC	CC	CG	CT							
CHRIS	MARSHALL SHARPSHOOTER	57.2	26.0	56	7	14.6	8.3	73	1.79	0.380	12.2	46.5	15.0	54.6	2	3	5	4	3.0	54.5	3.0	3	3	5	4	192
MARSHALL		57.5	28.4	57	6	13.5	8.2	62	1.79	0.365	11.2	53.3	14.8	52.2	2	3	4	5	3.0	52.5	3.0	3	4	5	4	194
SHARPSHOOTER		59.4	33.9	78	2	13.9	8.5	59	1.70	0.361	11.4	55.9	14.7	55.3	2	2	3	3	3	55.0	56.8	3.5	3	3	4	176
NORM		57.0	34.6	79	2	14.5	8.0	58	1.75	0.400	11.6	54.7	13.9	56.9	3	3	3	3	3	5.0	56.8	3.5	3	3	3	4
VERDE	BACUP GRANDIN	57.0	31.2	78	2	13.6	8.2	65	1.66	0.341	10.8	59.4	14.1	55.0	2	3	5	1	3.3	55.0	3.3	3	3	5	1	185
BACUP		59.9	29.1	42	6	17.9	8.6	70	1.88	0.389	15.7	48.1	14.1	60.5	3	3	3	3	2.0	62.5	2.0	3	3	3	4	218
GRANDIN		57.2	33.4	84	1	14.6	8.3	64	1.65	0.388	12.1	59.2	13.9	55.8	2	3	3	3	3.0	58.0	3.0	3	3	3	4	199
KULM		58.2	30.6	77	3	15.3	8.2	70	1.75	0.358	12.5	60.7	14.1	52.9	2	3	3	3	3.0	54.8	3.0	2	3	3	4	185
KEENE	2375 ARGENT PARSHALL	58.2	33.1	75	4	15.0	8.3	67	1.84	0.393	12.3	56.9	13.7	56.9	2	3	5	4	4.0	58.8	4.0	3	5	5	4	200
2375		58.0	33.9	71	3	13.7	8.1	63	1.81	0.368	11.0	58.1	13.5	52.2	2	2	4	6	3.0	55.5	3.0	3	4	6	4	182
ARGENT		57.0	33.7	85	2	15.9	8.3	77	1.75	0.383	13.1	56.5	14.5	59.0	3	3	3	3	2.5	59.0	2.5	3	3	3	6	212
PARSHALL		59.4	29.3	69	4	14.3	8.4	67	1.73	0.384	11.4	57.3	13.6	56.9	3	3	3	5	3.0	58.8	3.0	3	3	5	6	194
REEDER	SHARP OXEN FORGE INGOT	58.7	28.9	63	5	15.0	8.2	72	1.91	0.351	12.4	52.9	14.2	56.5	2	5	5	6	3.0	56.5	3.0	3	4	5	6	198
SHARP		57.4	32.9	81	3	14.8	8.1	73	1.76	0.359	12.0	56.9	13.7	57.9	2	2	3	4	1.5	59.0	1.5	3	4	6	5	180
OXEN		58.0	28.7	66	5	14.9	8.3	76	1.61	0.322	12.2	63.3	13.9	59.3	3	3	3	3	2.8	59.0	2.8	3	3	3	5	210
FORGE		59.1	33.4	79	3	15.2	8.1	69	1.97	0.344	12.4	57.3	13.9	57.3	2	2	3	3	2.0	59.0	2.0	3	3	3	6	208
INGOT	RUSS EMBER LARS HAMER	58.7	30.5	71	5	15.1	8.4	76	1.76	0.388	12.9	61.1	13.4	57.3	2	2	5	6	2.0	59.0	2.0	3	3	5	6	210
RUSS		57.0	33.3	80	3	15.0	8.3	72	1.80	0.402	12.1	57.1	13.9	56.9	2	2	4	6	2.8	58.8	2.8	3	4	6	5	178
EMBER		60.2	32.6	79	2	13.1	8.3	70	1.71	0.377	10.1	60.7	14.4	50.8	1	1	6	5	3.3	52.8	3.3	2	4	5	5	165
LARS		55.3	29.2	72	3	13.2	8.4	64	1.77	0.418	10.3	59.8	14.1	50.2	1	1	7	5	4.3	56.5	4.3	2	1	5	5	175
HAMER	GUNNER NORA HAGER IVAN	57.4	32.4	82	1	14.5	8.1	80	1.73	0.406	11.5	60.4	14.6	55.8	2	2	4	6	3.0	58.0	3.0	3	4	6	5	212
GUNNER		58.4	26.5	48	8	15.0	8.4	74	1.92	0.395	12.3	57.1	13.9	56.5	3	3	4	3	2.3	56.5	2.3	3	4	3	5	198
NORA		56.2	32.2	58	4	16.4	8.2	65	2.05	0.430	13.9	51.7	14.1	55.8	2	3	4	5	2.3	57.0	2.3	3	4	5	5	198
HAGER		58.0	35.5	79	2	14.0	7.9	50	1.70	0.382	11.0	54.3	14.2	54.6	2	2	7	0	4.3	56.8	4.3	3	4	6	5	190
IVAN	N93-0119 HJ98 MCVEY MN95002	56.2	28.4	62	5	13.8	8.3	70	1.71	0.372	11.1	60.3	14.0	53.2	2	2	5	3	3.0	57.0	3.0	3	4	6	5	192
N93-0119		57.0	31.0	68	4	14.3	8.6	84	1.80	0.404	11.4	56.9	13.7	57.3	3	3	4	6	2.5	59.0	2.5	3	4	6	5	184
HJ98		56.7	27.1	42	8	13.6	8.5	56	1.76	0.381	11.3	53.1	14.1	52.9	2	2	6	0	3.5	54.8	3.5	3	4	6	5	190
MCVEY		54.7	29.7	47	7	13.2	8.4	70	1.69	0.411	10.5	52.6	13.8	52.6	2	2	5	5	3.0	54.8	3.0	3	4	5	5	172
MN95002	MN95229 MERCURY AC BARRIE AURORA	58.2	32.4	74	4	16.4	8.0	72	1.87	0.378	13.7	53.3	13.8	56.9	1	1	2	4	1.5	58.0	1.5	2	4	5	5	201
MN95229		58.9	35.2	83	2	15.1	8.1	75	1.85	0.401	12.4	54.9	14.0	59.0	3	3	3	6	2.3	59.0	2.3	3	3	6	6	190
MERCURY		57.3	34.2	87	1	13.5	8.3	70	1.73	0.376	10.7	59.0	14.4	55.5	2	2	4	0	2.8	55.5	2.8	2	3	6	5	192
AC BARRIE		56.2	27.6	52	9	15.5	8.1	70	1.74	0.367	13.3	61.2	13.6	56.2	3	3	4	0	2.5	56.5	2.5	3	3	3	6	218
AURORA		56.6	28.8	71	3	13.2	8.1	69	1.83	0.409	11.0	60.0	13.3	53.2	2	2	6	3	4.5	55.0	4.5	3	4	5	5	188

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Minnesota

South, MN, AY1		Wheat										Flour										Peak		Bake		Mix		Loaf	
Variety	TW lb/bu	KWT gm	LG %	SM %	Wheat			Wheat			Wheat			Flour			Mix		Bake		Time		Dough Char		Vol				
					Pro	Moist	NIR	Ash	Ash	Pro	Ext	Moist	Abs	Pat	Time	Abs	Time	DC	CC	CG	CT								
CHRIS	56.6	23.5	36	9	16.4	8.0	81	1.83	0.360	14.1	59.7	13.3	59.0	3	2.8	59.0	2.5	3	3	5	5	210							
MARSHALL	56.6	23.8	27	12	15.4	7.9	69	1.90	0.420	12.8	58.8	14.1	55.5	2	3.5	55.5	2.5	3	3	3	4	198							
SHARPSHOOTER	60.6	29.8	65	4	15.7	8.0	83	1.67	0.360	13.2	61.0	14.2	57.3	2	3.0	57.0	2.3	3	5	5	5	190							
NORM	58.2	33.4	77	2	16.2	8.1	83	1.93	0.372	13.3	57.5	14.5	59.0	3	4.0	57.0	2.5	3	3	5	6	195							
VERDE	57.9	29.3	70	3	15.4	8.2	81	1.82	0.374	12.5	61.6	14.2	57.3	2	3.8	57.0	2.5	3	3	5	5	191							
BACUP	60.6	25.7	12	9	17.1	8.3	73	1.94	0.353	15.3	56.7	13.5	59.3	3	3.5	59.0	2.3	3	4	5	5	210							
GRANDIN	57.0	29.0	59	5	16.3	8.1	82	1.80	0.427	13.5	59.6	14.0	55.8	3	5.0	57.5	3.0	3	3	6	6	208							
KULM	59.7	28.1	65	4	16.4	8.1	70	1.79	0.318	14.0	61.6	14.2	57.3	3	4.0	58.0	2.8	3	5	6	5	212							
KEENE	58.6	30.6	64	4	16.1	8.0	81	1.88	0.392	13.5	60.8	14.0	57.3	3	5.5	58.5	3.5	3	5	5	5	204							
2375	58.2	30.7	53	5	15.3	8.3	83	1.79	0.418	12.6	59.5	14.1	56.9	2	4.3	56.8	2.5	3	3	3	5	188							
ARGENT	58.3	30.8	77	2	16.6	8.1	78	1.83	0.424	14.1	61.4	13.7	58.2	3	4.0	60.0	2.3	3	3	5	6	205							
PARSHALL	60.6	28.8	63	3	17.1	7.9	81	1.86	0.409	14.4	57.5	14.0	56.9	2	4.0	56.8	2.3	3	5	5	6	201							
REEDER	59.6	30.9	68	4	15.9	8.1	70	1.77	0.364	13.1	58.0	14.2	56.2	2	4.8	56.5	2.5	3	3	6	5	195							
SHARP	59.3	30.7	70	3	16.3	8.2	75	1.65	0.335	13.6	57.6	14.8	56.9	2	3.0	56.8	2.5	3	3	3	5	185							
OXEN	56.6	26.8	49	6	15.4	8.2	82	1.72	0.354	12.4	61.6	14.2	56.5	3	6.0	56.5	3.5	3	3	6	5	188							
FORGE	59.3	29.1	56	5	15.5	7.9	67	1.74	0.353	12.6	57.6	14.3	56.5	2	4.8	56.5	2.8	3	3	6	5	176							
INGOT	60.0	27.8	48	6	16.6	8.1	81	1.81	0.350	13.4	59.7	14.2	55.8	2	5.0	56.0	3.3	3	3	6	5	202							
RUSS	58.6	30.3	73	2	16.4	8.0	80	1.81	0.413	13.7	60.6	14.0	57.6	3	4.0	58.5	2.8	3	3	6	6	211							
EMBER	59.5	29.1	52	7	15.4	8.0	82	1.75	0.383	12.1	60.1	14.2	52.9	2	6.0	54.5	3.5	3	4	6	5	175							
LARS	56.6	29.2	66	3	14.8	8.0	82	1.82	0.408	12.3	61.7	13.6	53.8	2	7.0	56.0	4.5	3	4	6	4	182							
HAMER	58.2	32.5	79	1	16.6	7.8	71	1.97	0.381	13.5	59.9	14.0	59.6	4	4.0	59.5	2.3	3	1	6	6	192							
GUNNER	58.2	25.6	36	8	16.9	8.0	91	1.87	0.446	13.9	55.3	14.4	58.6	3	4.3	58.8	2.5	3	4	6	6	198							
NORA	56.8	27.4	28	8	16.7	8.1	70	2.05	0.493	13.7	56.5	14.7	55.5	2	6.0	56.8	3.5	3	4	6	5	190							
HAGER	57.4	30.0	53	7	16.1	8.1	66	1.75	0.379	13.2	50.7	14.8	56.2	3	6.5	56.5	3.3	3	4	5	5	188							
IVAN	59.6	30.1	65	2	14.7	8.4	79	1.83	0.344	11.4	57.2	15.2	51.9	1	6.8	53.0	3.0	3	3	3	5	171							
N93-0119	58.6	28.5	55	6	15.6	8.1	100	1.76	0.388	12.3	53.0	15.1	55.3	2	4.0	55.0	2.0	3	3	3	5	170							
HJ98	57.0	25.6	23	9	15.4	8.1	74	1.88	0.430	12.7	58.3	14.1	53.8	2	6.0	56.5	3.5	3	5	3	5	182							
MCVEY	55.0	27.0	22	9	14.4	8.1	86	1.73	0.435	11.3	50.7	15.0	52.6	2	4.3	54.0	2.5	3	4	6	4	168							
MN95002	59.4	28.5	51	6	16.1	8.0	83	1.82	0.407	13.7	50.0	15.0	54.3	2	4.3	54.5	2.0	3	3	6	5	198							
MN95229	59.2	31.4	66	3	16.8	8.1	77	1.94	0.379	13.3	48.6	15.1	54.6	2	5.5	54.8	2.8	3	5	6	6	192							
MERCURY	58.2	33.9	78	2	16.1	8.0	80	1.79	0.383	12.9	55.1	15.2	53.2	2	4.8	53.0	2.0	3	5	4	6	192							
AC BARRIE	58.2	28.6	46	5	16.7	7.9	84	1.77	0.400	13.7	59.5	14.5	52.9	2	7.0	52.8	3.3	3	4	5	4	212							
AURORA	57.4	28.1	70	3	15.1	8.6	84	1.80	0.395	12.3	57.0	14.7	50.5	1	13.0	53.0	4.8	3	4	3	5	188							

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Minnesota

Stephen, MN, AY1		Wheat				Wheat				Flour				Mix		Peak		Bake		Mix		Dough Char		Loaf	
Variety	TW lb/bu	KWT gm	LG %	SM %	Pro 14%	Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Mix Pat	Time min	Abs %	Time min	DC	CC	CG	CT	Vol cc			
CHRIS	58.4	25.8	46	6	15.7	8.1	89	1.56	0.382	14.2	58.0	14.0	60.3	3	3.0	60.5	2.8	3	5	3	5	218			
MARSHALL	58.6	25.3	32	8	13.8	8.2	68	1.80	0.393	11.9	59.2	14.4	57.9	2	3.3	57.0	2.5	3	3	6	5	208			
SHARPSHOOTER	61.4	28.6	59	3	14.5	8.1	79	1.56	0.332	12.7	60.7	14.6	60.0	2	3.5	60.0	2.8	3	3	6	6	191			
NORM	58.2	31.4	69	3	14.6	8.3	79	1.61	0.386	12.5	58.7	14.6	59.0	3	5.3	59.0	3.5	3	6	6	6	218			
VERDE	58.9	28.7	61	4	14.3	7.9	82	1.58	0.399	12.1	63.0	14.6	56.9	2	5.5	55.0	3.5	3	3	3	6	194			
BACUP	61.8	25.6	10	10	18.2	8.1	63	1.63	0.335	16.9	54.8	14.3	61.8	4	3.0	59.5	2.5	3	5	3	6	230			
GRANDIN	59.4	27.5	64	4	14.9	8.2	82	1.51	0.379	12.7	62.3	14.8	57.3	3	5.5	54.8	3.5	3	3	6	5	198			
KULM	60.7	28.2	54	5	16.0	8.0	94	1.47	0.344	13.8	59.6	14.6	59.0	4	5.0	56.8	3.3	3	3	5	6	204			
KEENE	61.0	31.5	72	2	14.9	7.9	81	1.46	0.362	12.9	60.1	14.7	57.9	3	5.5	56.0	3.8	3	6	5	5	200			
2375	60.4	33.1	65	3	15.1	8.2	84	1.43	0.325	12.8	61.6	14.8	57.3	2	4.3	55.0	2.5	3	3	3	5	191			
ARGENT	61.8	29.8	76	2	15.6	8.0	85	1.56	0.349	14.0	63.7	14.4	59.3	3	4.0	56.8	2.8	3	5	6	5	204			
PARSHALL	62.6	27.7	57	4	15.9	7.9	76	1.53	0.328	13.9	61.8	14.5	58.2	3	5.0	56.0	3.0	3	3	3	6	205			
REEDER	59.5	26.4	43	7	15.5	8.1	68	1.57	0.379	13.5	61.0	14.8	57.3	2	5.3	56.5	3.3	3	4	3	5	205			
SHARP	60.4	27.4	53	4	14.2	8.0	74	1.44	0.358	12.7	63.0	14.3	57.3	2	4.0	57.0	2.8	3	3	3	5	182			
OXEN	59.2	25.0	39	8	15.1	7.6	87	1.61	0.348	13.0	67.8	14.5	57.9	3	5.5	56.8	3.5	3	3	4	4	192			
FORGE	59.6	26.1	35	8	14.1	7.9	69	1.48	0.366	11.9	61.8	14.9	56.2	2	5.8	55.0	3.5	3	4	5	6	182			
INGOT	63.4	27.9	48	5	14.6	7.9	71	1.51	0.323	13.0	63.2	15.0	52.3	3	6.5	53.5	4.3	3	3	3	5	183			
RUSS	60.3	30.7	75	1	14.9	8.0	82	1.73	0.380	12.8	63.2	14.7	59.0	3	4.5	57.0	3.3	3	3	4	6	185			
EMBER	61.4	28.6	49	5	13.4	7.8	88	1.46	0.375	10.9	63.5	14.8	53.2	2	8.5	53.0	4.8	3	4	3	4	172			
LARS	58.2	28.1	64	3	13.9	7.9	82	1.48	0.414	11.8	64.6	14.1	56.2	3	5.8	54.5	3.8	3	1	6	5	176			
HAMER	59.7	31.2	76	1	14.9	7.9	82	1.51	0.402	13.1	65.7	14.1	59.6	3	4.0	56.8	2.8	3	4	6	5	188			
GUNNER	59.8	24.9	35	11	15.9	7.8	83	1.64	0.401	13.8	60.8	14.3	59.3	3	4.0	58.5	2.8	3	3	3	6	204			
NORA	58.0	29.4	24	8	15.8	8.0	79	1.73	0.473	13.9	55.9	14.7	57.3	2	7.0	56.0	4.0	3	4	3	5	200			
HAGER	58.3	31.9	64	4	14.8	7.9	69	1.63	0.405	12.9	54.2	14.8	58.2	2	5.3	56.5	3.5	3	4	5	5	190			
IVAN	60.2	29.7	59	3	13.4	8.1	70	1.61	0.360	11.6	62.4	14.6	53.5	2	6.5	54.5	3.5	3	4	5	4	175			
N93-0119	58.9	27.2	51	5	14.9	8.0	97	1.54	0.382	12.0	61.3	14.2	57.3	2	4.0	57.0	2.8	3	3	5	6	190			
HJ98	58.8	26.7	24	7	13.8	8.0	73	1.52	0.393	11.9	57.4	14.4	55.5	2	7.0	55.5	4.0	3	3	3	6	192			
MCVEY	57.2	30.3	46	6	13.2	8.2	79	1.49	0.422	10.8	59.6	15.3	53.8	2	5.0	54.0	3.0	3	4	5	6	172			
MN95002	60.6	29.5	53	4	16.2	7.8	71	1.49	0.338	13.9	58.8	14.5	58.2	2	4.0	56.0	2.8	3	4	3	6	202			
MN95229	61.3	30.3	64	3	15.5	8.0	73	1.43	0.357	13.4	59.6	14.9	60.0	3	4.5	58.5	3.0	3	3	6	6	201			
MERCURY	59.2	32.1	71	2	14.9	8.1	73	1.54	0.390	12.8	62.1	14.6	59.0	3	4.0	57.0	2.0	3	4	2	6	202			
AC BARRIE	57.0	25.1	17	11	15.5	8.2	79	1.63	0.366	13.8	62.6	14.3	58.2	3	5.0	56.5	3.3	3	4	4	6	210			
AURORA	57.4	27.8	59	4	14.6	7.9	69	1.72	0.425	12.5	61.6	14.4	57.9	3	7.0	56.5	3.8	3	1	5	5	184			

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Advanced Yield Trials - 1999 Crop

Minnesota

St. Paul, MN, AY2		TW lb/bu	KWT gm	LG %	SM %	Wheat			Wheat			Flour			Mix		Peak Time min	Bake Abs %	Mix Time min	Dough Char			Loaf Vol cc
Variety	Pro %					Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Pat	DC	CC				CG	CT		
CHRIS	56.5	28	22.4	28	10	15.4	7.7	77	1.85	0.412	13.4	61.9	14.2	55.0	2	3.8	55.0	2.5	3	5	3	4	200
VERDE	56.3	28.0	63	4	14.5	7.8	79	1.92	0.372	11.8	65.1	14.4	56.2	2	3.5	56.5	2.8	3	3	3	3	4	201
2375	59.0	30.7	60	4	14.4	7.8	75	1.83	0.409	12.0	64.5	14.1	55.0	2	4.3	55.0	3.0	3	3	3	5	4	182
BACUP	60.2	26.3	19	8	17.2	7.8	72	1.98	0.393	15.7	55.5	14.3	58.6	2	3.5	58.8	2.8	3	3	3	4	5	216
MN97003	58.1	31.0	62	3	14.8	7.7	78	1.82	0.405	12.5	64.0	13.7	55.5	2	3.8	55.5	2.8	3	6	3	4	4	181
MN97008	58.2	27.5	46	5	15.2	7.8	75	1.93	0.442	13.2	62.3	14.1	58.6	2	4.3	58.8	3.0	3	3	3	3	4	192
MN97039	56.3	27.7	39	4	14.2	7.8	66	1.95	0.399	11.9	61.6	14.1	53.2	2	4.3	54.5	3.0	3	3	5	5	5	190
MN97063	58.2	28.8	54	4	14.3	7.9	88	1.82	0.408	11.5	64.5	14.4	54.3	2	8.5	53.0	4.8	3	6	4	4	4	182
MN97072	57.7	26.9	54	6	14.3	8.1	66	1.86	0.422	12.3	63.8	14.4	55.5	2	5.0	55.5	3.0	3	5	5	5	5	190
MN97073	58.1	28.9	55	4	14.8	7.9	73	1.92	0.431	12.6	61.3	14.6	55.5	2	3.5	55.5	2.5	3	4	6	6	4	188
MN97178	57.7	24.1	34	6	14.9	7.8	73	1.80	0.423	12.7	64.1	14.6	55.0	2	8.0	53.0	4.0	3	5	6	4	4	188
MN97179	58.0	25.9	52	6	15.7	7.7	81	1.99	0.471	13.9	62.9	14.2	57.3	2	5.0	54.8	2.8	3	3	5	4	4	193
MN97283	57.6	25.8	51	6	15.1	7.8	58	1.97	0.422	13.0	58.8	14.3	57.6	2	6.0	55.5	3.8	3	3	3	5	5	193
MN97365	55.9	24.3	32	12	14.6	7.7	75	2.03	0.489	12.6	60.2	14.1	57.6	2	3.5	57.5	2.8	3	4	6	5	5	188
MN97369	55.8	27.0	42	8	15.2	7.8	75	1.99	0.407	12.9	58.9	14.6	58.2	3	8.5	58.5	5.3	3	4	3	3	5	170
MN97372	56.2	29.5	57	6	14.8	7.8	78	1.85	0.452	12.4	62.0	14.4	55.0	2	7.0	55.0	4.0	3	3	3	3	6	188
MN97395	55.6	26.7	51	6	15.3	8.2	62	1.80	0.398	13.7	61.4	14.0	54.6	1	3.0	54.8	2.0	3	5	5	6	6	187
MN97425	57.0	27.0	52	8	13.7	8.2	69	1.99	0.429	12.0	59.0	14.3	52.2	1	7.8	54.5	4.5	3	1	6	5	5	174
MN97448	58.2	25.9	44	8	15.2	7.7	60	1.85	0.383	13.3	59.5	14.0	57.3	2	4.0	57.0	2.8	3	5	6	6	6	194
MN97456	59.2	29.1	60	4	15.0	7.7	71	1.90	0.404	12.4	62.4	14.5	57.9	3	5.3	58.0	3.5	3	3	3	6	6	190
MN97482	56.5	29.9	59	4	15.3	7.7	82	2.03	0.480	12.9	64.1	13.6	58.9	2	6.0	59.0	3.5	3	5	3	3	4	181
MN97518	58.2	28.0	53	8	15.8	7.8	78	1.89	0.440	13.3	60.2	14.0	56.5	1	3.0	57.5	2.0	3	4	5	5	5	178
MN97558	59.0	26.2	35	8	14.9	7.7	87	1.88	0.479	12.3	60.7	14.3	53.2	1	4.0	55.5	2.5	2	4	5	5	5	168
MN97561	58.0	24.0	24	9	15.3	7.8	72	1.90	0.377	13.2	61.3	14.9	58.2	2	3.0	58.5	2.0	3	4	3	3	5	192
MN97606	59.2	27.5	55	5	14.4	7.6	75	1.83	0.411	11.9	63.5	14.2	53.5	2	6.5	55.5	3.8	3	4	6	5	5	176
MN97608	58.5	28.9	70	3	15.3	7.6	80	1.87	0.423	12.7	63.7	14.0	55.5	2	6.0	56.8	3.8	3	3	3	5	5	185
MN97617	58.6	29.1	65	4	15.4	7.9	82	1.77	0.406	13.2	65.2	13.8	56.5	2	3.0	56.5	2.0	3	3	5	6	6	192
MN97649	60.2	29.2	66	4	15.1	7.7	76	1.68	0.383	13.2	63.5	13.8	56.5	2	4.5	56.5	3.0	3	5	6	6	6	192
MN97665	58.7	29.2	69	2	16.0	7.6	77	1.90	0.392	14.3	61.3	14.0	57.9	2	2.0	58.0	1.5	3	3	5	6	6	194
MN97668	60.5	28.3	58	3	16.0	7.7	92	1.83	0.429	13.7	63.4	13.7	56.9	2	5.5	58.0	3.3	3	3	5	5	6	195
MN97670	60.1	28.6	70	2	15.5	7.7	90	1.91	0.433	13.4	63.3	13.7	56.9	2	4.8	57.5	3.3	3	3	5	3	6	212
MN97686	58.2	27.3	45	5	15.9	7.7	96	1.85	0.425	13.9	63.5	14.3	55.0	2	4.5	56.0	2.8	3	3	5	5	5	168
MN97695	59.8	28.4	65	3	15.4	7.5	61	1.75	0.325	13.7	61.8	14.1	57.6	2	7.3	57.5	4.5	3	6	5	5	5	205
MN97712	58.2	26.7	47	3	14.2	8.0	32	1.90	0.325	11.7	34.1	14.4	51.6	1	3.5	51.5	2.3	2	6	3	4	4	182
MN97800	57.2	30.5	61	4	14.3	7.7	74	1.72	0.390	12.4	62.7	14.3	55.8	2	3.3	56.0	2.3	3	6	5	6	6	192
MN97803	57.4	30.2	61	5	15.5	7.8	82	1.84	0.403	13.6	61.8	14.1	52.3	2	4.0	54.5	3.0	3	6	3	5	5	204

USDA/ARS Wheat Quality Laboratory, Fargo, ND

Advanced Yield Trials - 1999 Crop

Minnesota

Crookston, MN, AY2

Crookston, MN, AY2																						
Variety	TW lb/bu	KWT gm	LG %	SM %	Wheat			Wheat			Flour			Mix		Peak Time min	Bake Abs %	Mix Time min	Dough Char	Loaf Vol cc		
					Pro 14%	Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Pat	DC						CC	CG
CHRIS	54.7	22.0	35	10	17.4	8.1	84	1.81	0.349	15.4	61.3	14.0	57.3	3	4.0	58.0	2.5	3	5	3	4	222
VERDE	56.0	26.0	56	4	15.7	8.0	79	1.76	0.379	13.3	64.8	14.2	56.5	2	6.5	52.5	4.5	3	3	3	4	194
2375	60.3	31.6	56	4	16.3	7.7	78	1.71	0.349	13.4	62.7	14.2	56.9	3	5.3	56.8	3.5	3	3	6	5	198
BACUP	60.3	26.6	12	7	18.2	8.0	72	1.82	0.367	16.0	54.7	14.6	57.9	3	4.0	52.8	2.5	3	3	3	5	204
MN97003	59.0	29.1	53	3	16.2	7.9	67	1.57	0.350	13.9	60.2	14.3	58.2	3	5.3	56.5	3.0	3	3	5	5	212
MN97008	58.2	26.7	45	6	17.1	7.8	76	1.78	0.368	15.0	61.0	14.1	60.5	4	5.3	56.5	3.3	3	3	6	5	184
MN97039	55.3	26.0	30	10	15.6	7.9	69	1.86	0.389	13.7	57.6	13.5	55.8	2	6.0	51.0	3.8	3	4	3	4	190
MN97063	58.1	27.3	47	5	15.3	7.9	78	1.61	0.343	12.5	59.6	14.6	54.3	2	14.5	54.5	7.3	3	3	3	4	192
MN97072	56.8	23.8	20	11	16.3	7.7	75	1.62	0.347	14.7	57.7	14.2	57.3	2	5.0	52.5	2.8	3	3	5	4	195
MN97073	56.8	25.4	28	9	16.6	7.6	69	1.81	0.316	14.5	54.2	14.4	55.8	2	5.5	52.0	2.8	3	3	5	5	191
MN97178	56.2	23.3	21	13	16.1	8.4	78	1.65	0.382	14.3	58.5	14.4	57.3	3	7.5	52.5	5.0	3	3	5	5	198
MN97179	56.2	22.8	23	12	16.4	8.2	86	1.90	0.406	13.9	61.1	14.3	57.9	4	6.0	57.5	4.5	3	3	5	5	204
MN97283	58.2	25.7	50	6	16.5	8.0	73	1.72	0.309	14.6	58.5	13.7	55.8	3	9.0	56.8	6.0	3	3	3	5	204
MN97365	54.6	22.3	20	17	16.1	7.8	83	1.74	0.412	14.9	58.3	13.7	59.0	3	4.0	57.5	3.0	3	3	6	5	202
MN97369	55.4	24.8	28	10	16.3	7.8	68	1.95	0.374	13.9	55.5	13.7	59.0	4	10.0	57.5	6.8	3	3	5	6	182
MN97372	54.5	25.0	35	10	16.4	7.9	83	1.93	0.395	14.2	60.4	14.3	55.0	3	9.5	55.0	5.5	3	3	3	5	196
MN97395	58.0	29.9	60	3	15.1	8.2	61	1.58	0.368	13.6	58.1	14.2	55.5	2	3.5	52.8	2.3	3	3	3	5	182
MN97425	59.5	27.1	55	5	14.5	8.0	75	1.75	0.401	12.8	60.3	14.7	51.9	1	10.0	58.5	6.5	3	1	6	6	196
MN97448	59.8	25.1	35	9	16.0	7.9	67	1.72	0.399	12.6	57.8	13.4	57.3	2	5.0	55.0	3.5	3	5	6	5	212
MN97456	59.0	29.1	57	8	16.7	7.7	75	1.77	0.357	14.1	60.6	14.2	56.5	3	8.0	58.0	5.5	3	5	6	6	202
MN97482	57.4	27.9	50	3	16.1	8.0	73	1.80	0.385	13.5	59.8	14.0	57.3	3	7.5	58.5	5.5	3	3	6	5	191
MN97518	59.5	28.8	56	4	16.6	7.7	96	1.64	0.348	13.3	58.5	13.7	55.8	2	2.3	56.0	2.0	2	4	6	4	176
MN97558	58.1	24.4	18	14	15.6	8.0	89	1.67	0.379	12.5	57.3	14.6	54.3	2	5.0	57.5	3.5	3	5	5	5	191
MN97561	57.8	25.1	24	10	16.5	7.9	86	1.57	0.376	14.8	62.1	13.9	60.0	3	2.8	52.8	2.5	3	5	3	6	194
MN97606	59.7	27.2	60	6	16.0	7.7	77	1.74	0.373	13.3	64.0	13.8	53.5	3	8.0	57.0	5.0	3	5	6	4	200
MN97608	57.0	26.7	58	5	16.8	7.9	90	1.70	0.327	14.4	61.6	14.0	55.8	4	7.8	56.0	4.8	3	3	6	6	220
MN97617	59.1	28.0	60	4	16.3	7.7	88	1.81	0.307	13.7	63.8	13.7	57.3	3	3.5	54.5	3.0	3	3	6	6	190
MN97649	59.5	25.0	54	4	16.6	7.7	82	1.65	0.337	14.2	62.3	14.2	56.2	2	7.0	54.5	4.5	3	4	6	6	208
MN97665	59.1	29.9	72	3	16.8	7.7	75	1.78	0.341	14.8	60.4	13.9	59.0	3	3.0	56.8	2.5	3	3	6	6	194
MN97668	59.4	26.7	67	2	17.2	7.7	97	1.73	0.392	15.1	65.1	13.1	59.0	4	6.3	60.0	4.8	3	3	6	6	220
MN97670	60.3	27.5	65	4	17.5	7.6	99	1.73	0.394	15.3	64.9	13.7	55.8	4	7.0	57.0	5.5	3	3	3	6	208
MN97686	60.1	30.3	63	4	16.6	7.7	99	1.71	0.382	14.7	66.7	13.5	55.8	3	4.8	52.0	3.8	3	5	6	5	195
MN97695	60.9	27.0	56	4	15.9	7.9	69	1.55	0.289	14.2	61.7	13.8	59.3	3	8.8	55.0	4.8	3	5	4	5	218
MN97712	57.9	26.7	48	8	15.0	7.8	21	1.88	0.329	12.7	35.3	14.1	55.5	2	4.3	48.5	2.5	3	3	3	5	182
MN97800	58.2	28.6	52	5	15.6	7.8	84	1.66	0.366	13.4	62.4	13.7	59.0	2	3.3	56.0	2.8	3	3	6	6	182
MN97803	58.2	29.8	64	5	16.2	7.7	78	1.68	0.364	14.1	62.7	13.7	58.6	3	4.0	54.8	3.0	3	5	6	6	200

Minnesota

Crookston, MN, AY3																								
Variety	TW lb/bu	KWT gm	LG %	SM %	Wheat			Wheat			Flour			Mix		Peak Time min	Bake Abs %	Mix Time min	Dough Char			Vol cc	Loat	
					Pro 14%	Moist %	NIR HD	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Pat	DC	CC				CG	CT				
BACUP	60.6	26.2	12	10	18.0	7.9	69	1.95	0.447	16.2	56.9	13.2	58.6	3	3	3.8	58.8	3.5	3	6	4	198		
VERDE 2375	56.5	26.9	58	4	15.6	7.8	77	1.86	0.427	12.6	66.2	13.3	56.9	3	3	6.5	52.8	4.3	3	6	4	192		
	59.6	31.5	59	3	16.3	7.5	85	1.77	0.452	13.7	63.4	12.2	58.6	3	3	4.8	58.8	4.0	3	6	5	190		
MN98003	58.0	24.4	47	5	15.5	7.8	77	2.02	0.496	12.9	61.1	13.3	52.6	2	3	7.3	54.8	4.5	3	6	6	200		
	58.2	26.6	34	5	17.7	7.7	76	1.70	0.400	15.7	59.2	13.3	59.6	4	3	5.0	59.5	4.0	3	3	5	212		
MN98010	58.6	29.5	55	3	17.5	7.8	90	1.84	0.503	14.8	60.4	13.7	55.6	3	3	6.5	58.8	4.3	3	6	6	191		
MN98012	57.2	26.0	37	4	14.7	7.9	80	1.86	0.543	11.4	57.9	14.0	52.9	2	3	9.5	56.0	6.3	3	4	6	174		
MN98027	56.8	27.6	37	9	15.2	8.0	71	1.86	0.488	13.6	57.8	13.6	55.8	3	5	5.3	54.0	3.8	3	4	6	5	190	
MN98029	60.6	24.5	26	6	15.9	7.7	72	1.81	0.493	13.5	61.3	13.4	56.9	2	4	4.5	54.8	2.5	3	4	6	5	161	
MN98030	61.1	27.5	59	3	15.9	7.9	89	1.66	0.427	12.6	65.1	13.9	55.5	3	5	5.3	55.0	3.5	3	5	6	4	180	
MN98037	58.4	30.6	54	2	16.3	7.7	71	1.88	0.449	13.9	60.6	13.7	57.6	3	4	4.0	53.5	2.8	3	5	6	5	185	
MN98039	57.5	24.4	74	2	14.6	8.1	69	1.75	0.503	12.1	58.6	13.7	53.5	2	5	6.0	51.5	3.5	3	5	3	4	170	
MN98049	58.2	27.5	64	3	17.4	7.8	75	2.08	0.628	15.1	59.2	13.3	60.5	4	3	3.5	57.5	3.3	3	6	5	5	198	
MN98057	58.5	27.7	47	5	16.0	7.7	72	1.85	0.499	13.3	61.1	13.7	55.8	3	3	6.3	56.0	3.3	3	3	3	5	191	
MN98058	57.1	25.7	43	8	16.0	7.9	67	1.57	0.400	13.6	61.1	13.2	57.6	3	4	4.5	57.0	3.3	3	5	3	5	190	
MN98064	59.1	29.2	81	1	16.9	8.3	87	1.96	0.684	14.9	62.3	14.2	55.0	2	10	10.0	56.8	5.5	3	6	6	6	194	
MN98068	59.4	23.8	28	7	15.8	7.9	53	1.78	0.424	13.5	56.5	13.3	55.8	2	2	2.5	56.0	2.0	2	1	6	6	180	
MN98070	59.4	26.2	28	9	17.6	7.9	75	1.88	0.544	15.6	55.5	13.1	58.2	4	4	4.5	59.0	3.3	3	6	6	6	213	
MN98073	59.8	24.7	23	8	17.8	7.9	99	1.75	0.457	15.1	59.2	12.9	60.0	6	5	5.5	61.0	3.3	3	3	6	6	198	
MN98091	59.4	30.3	51	4	17.3	7.9	88	1.81	0.404	14.6	64.5	13.6	58.2	4	4	5.0	54.5	2.8	3	5	6	6	196	
MN98092	60.0	30.3	56	4	17.0	7.8	91	1.83	0.409	14.3	64.8	13.2	57.9	4	5	4.0	58.0	3.5	3	6	6	6	190	
MN98094	58.9	32.5	64	4	16.1	8.3	86	1.97	0.533	13.4	63.7	14.0	56.5	3	5	5.3	56.5	3.8	3	5	6	6	182	
MN98095	60.0	29.1	53	5	16.9	7.9	84	1.83	0.451	14.1	61.3	13.8	56.5	4	6	6.0	57.5	3.5	3	3	6	6	194	
MN98097	60.7	29.5	54	3	16.6	7.9	88	1.87	0.468	14.2	64.8	13.6	56.9	3	4	4.0	56.8	2.8	3	6	6	6	196	
MN98098	58.4	30.4	58	3	16.3	7.8	79	1.82	0.493	13.9	61.0	13.8	57.3	3	5	5.5	57.0	3.5	3	6	6	6	191	
MN98109	55.8	30.0	59	5	16.3	7.9	99	1.84	0.531	14.5	61.3	13.5	56.9	3	5	5.3	58.8	3.3	3	5	6	6	192	
MN98113	58.6	28.7	54	3	15.8	7.7	83	1.81	0.498	13.6	63.7	13.3	54.6	3	5	8.0	57.0	4.5	3	5	6	6	180	
MN98115	57.6	28.1	45	4	16.6	8.0	76	2.06	0.468	14.3	57.7	13.7	56.5	4	7	7.0	57.5	3.5	3	3	5	6	206	
MN98117	57.0	31.4	64	4	17.5	7.9	85	1.97	0.533	15.3	61.0	12.9	57.3	4	5	5.0	57.0	4.3	3	3	3	6	200	
MN98118	55.7	25.9	37	7	16.7	7.6	88	1.79	0.546	14.1	62.0	13.1	56.5	3	4	4.3	60.5	3.5	3	3	6	6	196	

USDA/ARS Wheat Quality Laboratory, Fargo, ND

Advanced Yield Trials - 1999 Crop

Minnesota

Crookston, MN, AY4		Wheat				Wheat				Flour				Mix		Bake		Mix		Dough Char				Loaf	
Variety	TW lb/bu	KWT gm	LG %	SM %	Pro 14%	Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Mix Pat	Time min	Abs %	Time min	DC	CC	CG	CT	Vol cc			
BACUP	61.3	28.2	55	6	18.1	7.9	69	1.84	0.528	16.2	55.9	13.4	59.0	3	3.5	59.0	2.3	3	5	3	5	202			
VERDE	57.0	27.2	63	4	15.4	7.8	86	1.76	0.470	12.6	64.6	14.0	55.8	2	6.5	52.0	4.5	3	5	3	5	185			
2375	59.4	30.8	55	5	16.7	7.9	85	1.88	0.438	14.6	65.2	12.5	57.6	3	3.0	57.5	3.0	3	5	6	5	190			
MN98120	58.4	33.6	72	3	16.0	7.7	72	1.74	0.390	13.7	59.5	13.5	58.6	2	3.8	58.8	3.0	3	6	6	6	181			
MN98130	60.1	28.5	62	4	15.7	8.0	73	1.81	0.465	13.7	55.7	13.1	55.8	2	5.5	58.8	4.3	3	3	5	6	190			
MN98131	60.1	28.5	59	5	15.7	7.8	76	1.77	0.420	13.7	51.9	13.5	56.5	2	5.3	60.0	4.5	3	5	5	6	182			
MN98132	60.1	28.6	54	8	15.9	7.8	71	1.69	0.449	13.7	54.0	13.7	52.3	2	5.8	59.0	5.0	3	3	5	6	186			
MN98134	57.4	30.1	56	4	15.5	8.2	68	1.79	0.452	13.2	55.7	13.1	56.2	2	5.3	58.5	4.8	3	3	6	6	186			
MN98136	58.2	26.4	38	7	16.3	7.9	76	1.71	0.394	13.7	62.4	13.9	57.3	3	4.5	55.5	3.0	3	5	5	5	178			
MN137	56.2	26.0	36	13	16.6	7.9	73	1.89	0.441	14.3	57.5	13.5	58.6	4	7.0	60.8	5.0	3	3	6	6	184			
MN98152	59.1	38.5	36	8	17.1	7.9	91	1.84	0.377	14.4	63.3	13.1	58.2	3	4.0	60.5	2.8	3	6	5	6	190			
MN98154	54.6	25.8	30	13	15.3	7.9	70	1.87	0.588	12.6	54.7	13.3	56.2	2	5.5	58.5	4.8	3	4	5	6	182			
MN98156	58.9	27.5	40	8	15.7	7.7	87	1.81	0.454	12.8	60.4	13.0	59.0	2	2.3	59.0	2.3	2	3	5	6	162			
MN98159	57.8	24.6	41	10	15.3	8.0	71	2.03	0.623	13.0	61.3	14.0	53.8	2	6.0	54.0	4.0	2	3	3	4	180			
MN98161	58.3	25.3	41	9	15.6	7.8	76	1.79	0.456	13.0	60.7	14.1	54.3	3	8.0	50.5	5.0	3	5	6	6	172			
MN98166	55.1	25.6	23	13	15.9	7.8	70	1.71	0.405	13.9	57.1	13.5	58.2	4	6.3	58.5	4.0	3	5	5	6	191			
MN98167	55.0	29.8	58	4	14.9	8.0	75	1.72	0.457	13.3	58.2	13.6	56.5	2	3.8	53.5	3.0	3	3	4	5	192			
MN98168	52.8	27.9	41	10	16.4	7.8	102	1.93	0.503	13.9	60.2	12.8	61.4	4	3.5	59.5	2.0	3	3	5	5	180			
MN98170	57.6	29.0	62	4	16.5	7.8	77	1.73	0.368	14.5	60.4	13.6	59.6	3	2.8	55.5	2.0	3	6	6	5	182			
MN98172	56.1	24.7	37	9	14.6	8.0	82	1.89	0.695	12.7	57.3	13.3	57.6	3	4.0	54.8	2.5	3	5	6	4	172			
MN98173	58.0	25.1	40	9	15.7	7.7	65	1.82	0.381	13.3	60.7	13.5	56.5	3	4.5	54.5	3.0	3	5	6	4	180			
MN98174	58.7	27.2	44	9	16.3	7.7	88	1.70	0.402	13.5	61.5	13.8	59.3	3	4.8	56.5	3.0	3	5	6	5	200			
MN98182	58.2	27.1	56	5	16.3	7.9	73	1.77	0.379	14.5	60.0	13.1	59.3	3	4.0	60.0	3.0	3	3	6	6	204			
MN98190	58.6	28.7	54	2	15.4	7.7	70	1.73	0.430	13.4	59.2	13.6	57.9	3	4.0	60.0	3.0	3	6	3	6	200			
MN98197	58.8	25.9	28	10	15.3	8.3	77	1.73	0.532	13.3	58.0	13.4	59.6	5	5.0	59.5	3.0	3	3	3	6	182			
MN98201	58.6	24.8	19	13	15.5	8.0	67	1.67	0.421	13.3	60.7	13.3	59.3	4	5.0	58.5	4.0	3	5	6	6	181			
MN98204	58.2	21.5	6	19	15.9	8.1	85	1.92	0.409	14.1	59.6	13.2	59.6	4	4.5	59.5	3.3	3	5	5	6	192			
MN98208	61.3	27.8	53	4	16.0	8.1	92	1.71	0.359	14.1	63.7	13.5	57.9	3	2.5	56.0	2.0	3	5	3	4	176			
MN98210	59.4	28.1	55	6	15.8	8.0	59	1.85	0.423	14.0	59.9	13.4	57.6	4	5.5	53.5	4.0	3	5	3	5	202			
MN98215	58.2	32.1	59	5	16.4	7.9	84	1.71	0.472	14.1	64.5	12.9	59.6	5	6.0	59.5	4.0	3	5	4	6	192			

Minnesota

Crookston , MN, AYS																						
Variety	TW lb/bu	KWT gm	LG %	SM %	Wheat			Wheat			Flour			Mix		Peak Time min	Bake Abs %	Mix Time min	Dough Char			Loat Vol cc
					Pro 14%	Moist %	NIR HD	Ash 14%	Ext %	Pro 14%	Ash 14%	Ext %	Moist %	Abs %	Pat				DC	CC	CG	
BACUP	61.0	26.5	11	8	18.8	7.0	71	1.95	0.399	16.4	54.7	13.3	58.2	3	4.0	60.5	2.5	3	3	6	5	208
VERDE 2375	56.8	25.3	53	7	15.3	7.4	81	1.74	0.401	13.0	61.9	13.9	57.9	3	6.0	56.0	3.5	3	3	6	4	191
	60.6	30.9	55	6	15.6	7.6	84	1.71	0.399	12.9	63.7	13.9	56.2	2	3.5	57.5	2.5	3	3	5	4	193
MN98221	54.4	29.5	59	4	16.6	7.6	68	2.04	0.534	14.6	59.2	13.3	60.0	3	3.8	59.0	3.0	3	3	5	5	206
MN98223	53.4	20.7	18	21	16.7	7.4	64	1.98	0.479	14.7	59.2	12.6	59.0	5	5.0	61.0	3.5	3	3	3	5	218
MN98224	59.7	26.6	48	14	15.8	7.5	88	1.74	0.441	13.2	62.7	13.4	57.3	3	4.3	59.0	3.3	3	5	6	6	208
MN98227	56.8	29.7	53	8	16.8	7.3	85	1.87	0.445	13.8	62.0	13.9	57.9	3	4.5	56.0	3.8	3	4	6	6	203
MN98229	55.5	30.3	47	9	15.8	7.3	76	1.74	0.473	13.2	61.9	14.0	55.5	3	5.0	54.8	3.8	3	3	6	6	198
MN98230	59.0	24.3	34	10	15.1	7.8	88	1.73	0.438	12.1	58.9	14.1	51.6	2	6.0	50.8	4.0	3	3	6	6	180
MN98231	55.9	23.6	18	19	17.0	7.8	73	1.83	0.462	15.1	55.4	13.6	58.2	5	7.0	56.5	4.5	3	4	6	6	186
MN98284	56.1	28.4	47	10	16.3	7.8	80	1.80	0.436	13.5	56.3	14.0	57.3	4	7.5	59.0	5.3	3	4	5	6	187
MN98285	58.4	28.6	47	7	16.6	7.5	86	1.84	0.484	14.1	64.0	13.7	57.9	2	2.3	56.0	2.0	3	3	6	6	175
MN98287	53.1	23.4	20	19	17.4	7.4	81	1.94	0.552	14.6	55.3	13.6	57.6	3	6.5	57.5	3.5	3	5	3	6	196
MN98294	55.0	21.1	22	18	18.7	7.2	84	1.97	0.437	16.2	56.8	12.8	59.3	5	5.5	62.5	3.8	3	2	3	6	220
MN98299	59.4	28.8	67	4	17.0	7.5	89	1.85	0.438	14.5	61.9	13.1	55.8	3	7.0	59.0	5.0	3	5	5	6	205
MN98329	55.5	27.0	52	7	16.4	7.4	81	1.70	0.375	14.4	57.1	13.1	57.3	2	4.8	59.0	3.0	3	3	6	6	205
MN98331	58.4	28.6	59	5	16.5	7.5	75	1.74	0.405	14.4	63.5	12.8	59.0	2	3.8	59.0	2.8	2	3	6	6	197
MN98339	58.0	31.5	54	6	16.1	7.4	79	1.63	0.404	13.8	63.0	13.5	59.6	3	3.0	58.5	2.5	3	3	5	6	200
MN98344	57.4	27.0	48	8	16.2	7.4	84	1.72	0.368	13.4	62.4	13.8	59.3	2	2.0	58.5	1.8	3	4	5	6	186
MN98354	60.6	27.7	62	3	15.5	7.5	83	1.68	0.319	12.8	66.2	14.0	50.5	1	6.0	52.5	3.0	3	5	5	5	195
MN98365	58.2	26.7	53	5	16.1	7.3	85	1.82	0.397	13.9	66.5	13.7	56.2	3	6.5	56.5	4.0	3	3	6	5	203
MN98366	56.5	23.8	23	15	15.8	7.3	85	1.89	0.434	13.8	62.5	13.0	57.9	3	5.0	55.0	3.8	3	3	6	6	207
MN98367	57.8	28.3	49	8	16.4	7.4	79	1.76	0.436	14.2	64.0	13.5	59.3	4	4.5	55.0	3.0	3	6	6	6	203
MN98368	55.7	26.9	45	9	16.5	7.3	86	1.68	0.401	13.9	64.0	13.2	59.3	4	5.0	59.0	3.8	3	3	6	6	205
MN98369	56.2	28.6	51	7	15.4	7.4	81	1.91	0.438	13.2	64.9	12.9	57.6	3	5.5	57.5	4.0	3	3	5	6	200
MN98383	55.8	26.4	29	11	16.0	7.4	84	1.80	0.462	13.1	63.1	13.7	55.3	3	8.0	55.0	4.5	3	3	6	6	198
MN98386	57.1	33.2	64	5	16.4	7.2	90	1.61	0.399	13.9	67.9	13.3	56.2	3	7.0	58.5	4.5	3	5	5	6	208
MN98389	57.2	31.0	50	7	15.6	7.1	91	1.60	0.410	13.0	66.7	13.4	55.8	2	5.5	58.0	3.5	3	3	5	6	186
MN98392	58.0	24.7	39	8	16.0	7.1	88	1.73	0.393	13.4	65.3	13.2	55.5	2	4.5	55.5	3.0	3	4	5	6	195
MN98399	53.4	21.6	17	17	17.4	7.0	93	1.78	0.420	15.2	60.0	13.0	59.0	3	4.0	60.5	3.3	3	4	5	6	222

Minnesota

Crookston , MN, AY6																							
Variety	TW lb/bu	KWT gm	LG %	SM %	Wheat			Wheat			Flour			Mix		Peak Time min	Bake Abs %	Mix Time min	Dough Char			Vol cc	Load
					Pro 14%	Moist %	NIR HD	Ash 14%	Ext %	Pro 14%	Ext %	Moist %	Abs %	Pat	DC				CC	CG	CT		
BACUP	61.4	26.8	14	9	18.9	7.3	70	1.89	0.393	16.7	57.5	13.1	58.6	3	3	5	5	203					
VERDE 2375	56.2	25.4	51	8	15.8	7.3	77	1.80	0.392	13.5	65.0	12.8	57.3	3	3	5	4	206					
	59.5	30.2	52	7	17.0	7.2	79	1.77	0.386	13.9	61.7	13.4	57.9	3	5	3	5	209					
MN98411	57.3	27.5	46	8	16.4	7.3	66	1.86	0.402	14.8	59.8	13.5	57.6	2	3.3	3	3	210					
MN98420	60.6	25.7	46	7	17.0	7.3	70	1.69	0.456	14.7	57.9	12.8	60.5	4	4.0	3	3	190					
MN98421	62.4	29.7	61	4	16.1	7.3	80	1.55	0.376	13.7	63.1	12.8	57.6	3	5.0	3.0	5	196					
MN98422	60.5	26.2	28	10	16.2	7.3	78	1.57	0.401	13.9	61.2	12.5	58.2	3	4.3	2.8	3	203					
MN98426	57.5	22.6	7	20	16.7	7.4	73	1.87	0.395	14.8	54.7	13.5	58.6	3	3.5	2.0	3	206					
MN98430	59.6	26.8	26	12	16.7	7.2	83	1.68	0.403	14.1	62.9	13.4	57.6	2	2.0	1.8	4	172					
MN98438	59.8	27.8	41	7	16.5	7.3	78	1.72	0.367	14.5	58.9	13.6	59.3	3	3.3	2.0	3	196					
MN98443	58.3	29.2	50	9	16.2	7.3	68	1.73	0.393	13.4	60.2	14.2	58.6	3	2.0	2.0	2	172					
MN98444	59.2	30.1	46	7	16.5	7.3	71	1.51	0.382	14.1	62.0	13.2	59.0	2	1.5	1.5	5	177					
MN98446	60.2	26.0	24	12	16.4	7.2	68	1.81	0.367	13.9	54.5	13.3	57.6	3	2.0	1.8	4	172					
MN98449	56.8	28.7	39	7	17.4	7.3	72	1.79	0.477	14.6	56.3	13.5	57.3	3	2.8	2.5	2	186					
MN98472	57.8	25.3	25	10	16.1	8.0	54	1.77	0.454	13.8	51.6	13.5	57.3	2	3.0	2.5	3	196					
MN98473	59.9	27.5	43	7	15.8	7.8	82	1.81	0.440	13.1	59.5	13.6	56.9	3	3.0	2.5	3	191					
MN98484	56.2	23.8	19	18	17.0	7.5	79	1.81	0.453	14.6	59.6	12.9	61.1	5	4.0	3.0	3	206					
MN98492	58.9	25.3	27	10	15.8	7.5	68	1.65	0.406	13.9	57.7	13.4	59.3	4	5.5	3.3	3	206					
MN98493	57.8	22.8	7	21	16.5	7.4	63	1.69	0.420	14.1	61.6	12.7	60.0	5	4.0	3.0	3	208					
MN98501	59.4	36.4	66	3	17.5	7.5	54	1.67	0.410	15.1	60.3	13.7	62.1	5	2.5	2.3	5	193					
MN98509	59.7	29.8	48	6	16.0	7.4	51	1.62	0.367	14.2	57.7	13.4	57.3	3	3.8	3.0	3	210					
MN98511	60.4	34.2	70	3	16.8	7.7	58	1.61	0.385	14.3	60.5	13.2	57.6	4	4.3	2.8	3	198					
MN98512	60.3	31.4	54	3	17.1	7.4	63	1.66	0.376	14.9	62.3	12.8	62.5	6	3.5	2.5	3	200					
MN98513	60.1	29.8	50	4	16.5	7.5	56	1.70	0.364	14.7	59.6	13.1	60.3	5	4.8	3.3	3	199					
MN98514	60.9	28.8	50	5	15.8	7.3	53	1.76	0.364	13.1	61.6	13.0	59.3	3	2.5	1.8	3	175					
MN98522	58.6	26.8	59	2	16.7	7.4	76	1.65	0.394	13.9	57.4	13.9	58.2	2	2.0	1.8	2	195					
MN98543	53.5	20.8	9	23	16.7	7.4	68	2.01	0.511	14.8	58.7	13.1	57.9	4	3.8	3.3	3	208					
MN98544	56.1	26.9	39	9	16.4	7.4	61	1.78	0.389	13.6	62.0	13.7	53.5	2	3.8	2.8	3	193					
MN98550	56.7	24.5	14	22	18.7	7.3	65	1.86	0.453	16.8	55.9	13.0	65.4	6	3.0	2.3	3	235					
MN98552	57.6	23.3	13	19	17.4	7.4	70	1.91	0.434	15.0	53.5	13.8	58.2	2	2.0	1.8	3	188					

USDA/ARS Wheat Quality Laboratory, Fargo, ND

Advanced Yield Trials - 1999 Crop

Minnesota

Morris, MN, AY2		TW lb/bu	KWT gm	LG %	Wheat			Wheat			Flour			Mix		Peak Time min	Bake Abs %	Mix Time min	Dough Char			Loaf Vol cc
Variety	SM %				Pro 14%	Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Pat	DC				CC	CG	CT	
CHRIS	57.4	24.6	39	4	16.6	7.0	76	1.70	0.415	13.7	52.3	14.1	56.9	3	4.0	56.8	2.5	3	3	3	5	198
VERDE	57.6	29.2	67	5	15.9	7.2	85	1.81	0.411	13.1	62.3	13.8	58.2	3	4.5	55.5	3.0	3	3	6	5	214
2375	59.0	31.7	57	6	15.4	7.2	74	1.64	0.413	13.1	62.9	12.6	57.6	2	2.0	58.8	2.5	3	3	6	6	185
BACUP	61.8	26.7	29	9	18.5	7.3	72	1.88	0.395	15.9	54.2	13.5	59.6	4	4.0	59.5	2.5	3	3	6	6	216
MN97003	58.6	28.5	52	8	15.5	7.4	74	1.69	0.416	13.4	58.6	13.3	56.2	2	5.0	55.0	3.3	3	3	5	5	187
MN97008	58.4	26.0	47	10	15.9	7.2	68	1.77	0.433	13.5	57.0	13.5	56.2	2	6.3	58.5	4.0	3	3	6	6	200
MN97039	56.2	26.5	37	12	15.3	7.4	67	1.74	0.439	12.8	55.5	13.2	53.8	2	6.0	56.0	4.3	3	3	3	4	201
MN97063	58.6	22.3	56	5	15.3	7.5	72	1.65	0.389	12.4	57.5	13.5	54.3	2	9.5	56.5	5.0	3	5	5	5	186
MN97072	57.4	26.4	41	9	15.3	7.4	67	1.62	0.385	12.8	56.2	13.9	54.6	2	5.5	56.8	4.3	3	3	3	4	196
MN97073	58.5	29.6	52	7	15.2	7.2	66	1.56	0.481	12.7	55.8	13.5	55.0	2	3.8	56.5	2.8	3	3	6	5	193
MN97178	57.1	26.0	49	10	15.9	7.2	65	1.73	0.430	13.6	60.6	12.9	55.8	3	6.5	57.5	4.5	3	4	6	6	209
MN97179	58.2	27.4	57	6	15.9	7.3	69	1.83	0.440	13.9	60.4	12.5	58.2	3	5.5	59.5	4.3	3	3	3	6	208
MN97283	57.0	26.1	49	13	16.4	7.2	67	1.92	0.439	14.2	54.5	13.1	57.6	3	7.3	57.5	5.3	3	4	6	6	198
MN97365	55.4	24.0	31	18	15.6	7.3	69	1.80	0.512	13.0	59.0	13.0	58.2	3	4.0	60.5	3.3	3	3	6	4	187
MN97369	55.4	25.6	40	13	15.9	7.4	68	1.74	0.450	13.5	54.7	13.0	59.0	5	8.5	61.0	7.3	3	3	6	6	186
MN97372	55.8	29.2	44	12	15.8	7.4	88	1.74	0.473	13.7	59.6	12.8	56.9	3	7.0	58.8	4.8	3	3	3	6	200
MN97395	57.5	29.6	60	6	16.0	7.5	53	1.68	0.434	14.0	53.5	13.6	54.6	1	4.0	56.0	2.5	3	5	3	6	203
MN97425	58.2	29.9	58	7	14.7	7.6	60	1.92	0.611	12.4	54.5	13.1	55.5	2	6.5	56.8	5.0	3	3	3	5	203
MN97448	59.0	26.9	47	11	16.0	7.4	51	1.73	0.388	14.1	57.1	12.8	57.9	2	5.8	58.0	3.5	3	3	3	5	205
MN97456	60.6	30.8	64	4	15.8	7.5	75	1.79	0.434	13.4	61.5	13.4	56.9	3	8.0	58.8	5.0	3	3	5	6	196
MN97482	58.1	32.3	60	6	15.2	7.4	73	1.71	0.466	12.7	61.9	12.9	56.5	3	8.0	59.5	5.0	3	3	5	6	188
MN97518	60.0	29.5	62	7	16.9	7.3	87	1.67	0.445	13.9	58.5	13.1	56.5	2	2.5	60.0	2.0	2	4	5	6	181
MN97558	60.4	28.0	40	11	15.4	7.3	94	1.67	0.431	12.0	60.4	13.6	52.2	1	5.5	60.0	3.3	3	3	3	6	181
MN97561	59.4	24.0	31	10	15.8	7.4	72	1.61	0.384	13.9	63.0	13.4	56.9	3	3.5	58.0	2.5	3	3	3	5	200
MN97606	60.1	28.0	59	7	15.9	7.5	76	1.72	0.419	13.0	63.3	13.2	51.6	2	8.3	58.5	5.0	3	3	3	5	175
MN97608	58.6	30.3	57	6	16.6	7.5	77	1.69	0.434	13.6	60.3	13.1	53.8	2	7.3	57.5	4.3	3	5	4	4	205
MN97617	59.1	29.6	68	5	16.0	7.6	77	1.76	0.428	13.7	65.1	13.1	55.5	2	4.0	58.5	2.8	3	3	3	5	215
MN97649	60.4	29.3	67	4	15.9	7.6	81	1.56	0.369	13.9	63.6	13.0	57.9	3	5.5	61.0	3.8	3	3	3	5	192
MN97665	60.8	34.1	76	5	16.4	7.6	60	1.66	0.362	14.1	57.5	13.6	58.2	3	3.0	58.5	2.3	3	5	3	6	205
MN97668	60.3	28.5	57	4	16.5	7.7	75	1.73	0.407	14.1	59.1	13.6	58.6	3	6.5	58.8	4.0	3	5	3	6	205
MN97670	61.0	29.3	70	4	16.7	7.2	77	1.62	0.422	13.8	60.2	13.5	56.5	2	7.5	59.5	4.3	3	3	3	6	208
MN97686	60.2	30.0	56	4	16.5	7.7	87	1.77	0.424	13.7	64.5	13.4	53.8	2	7.0	56.8	4.0	3	5	6	6	177
MN97695	61.5	30.8	71	4	16.0	7.7	53	1.47	0.346	13.6	62.6	13.4	57.6	2	9.5	57.5	5.0	3	5	4	5	212
MN97712	58.6	25.8	43	10	15.2	7.6	29	1.81	0.367	12.2	35.0	13.3	51.6	1	4.5	53.5	2.5	2	3	3	4	200
MN97800	58.1	30.8	62	7	16.2	7.4	62	1.83	0.394	14.0	59.2	12.8	57.3	2	3.5	61.0	2.8	3	3	3	6	215
MN97803	58.8	31.3	65	6	16.7	7.6	71	1.65	0.408	14.3	61.9	13.3	56.2	2	5.0	58.5	3.3	3	3	3	5	218

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Morris, MN, AY3		TW lb/bu	KWT gm	LG %	SM %	Wheat			Wheat			Wheat			Flour			Mix			Peak Time min	Bake Abs %	Mix Time min	Dough Char			Loaf Vol cc
Variety						Pro 14%	Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Mix Pat	DC	CC	CG	CT								
BACUP		61.8	28.2	26	9	18.1	7.4	70	1.75	0.401	15.7	58.7	13.3	57.9	3	4.3	60.0	3.0	3	3	5	6	6	212			
VERDE		57.8	28.9	63	5	16.2	7.3	77	1.82	0.407	12.9	62.3	13.6	59.3	3	4.0	57.0	2.8	3	3	6	5	5	195			
2375		58.6	29.9	51	6	15.5	7.5	80	1.63	0.401	12.3	60.9	14.2	55.0	3	5.0	56.5	4.0	3	3	6	5	5	188			
MN98003		60.2	26.0	52	4	15.8	7.4	61	1.70	0.397	13.5	55.1	14.0	52.2	2	6.0	54.5	3.5	3	5	3	4	183				
MN98010		58.3	26.2	36	8	17.1	7.3	78	1.62	0.403	15.0	54.9	12.8	60.0	4	5.0	62.0	3.3	3	3	3	5	225				
MN98012		59.5	29.5	58	4	17.3	7.3	84	1.68	0.377	14.3	56.0	14.4	55.8	3	6.0	60.0	3.8	3	3	3	5	225				
MN98021		60.3	28.0	56	5	15.0	7.5	68	1.69	0.462	11.7	55.3	13.7	54.3	2	4.5	57.5	3.5	3	4	6	5	178				
MN98027		56.8	26.0	36	12	15.5	7.5	57	1.66	0.413	13.0	53.3	13.9	53.8	3	5.5	56.0	3.8	3	3	3	5	185				
MN98029		61.3	24.7	24	14	15.6	7.6	65	1.65	0.421	13.1	54.7	14.0	53.8	2	5.3	56.0	3.0	3	4	5	6	182				
MN98030		62.0	27.5	49	8	15.4	7.4	77	1.65	0.404	12.4	59.3	14.2	54.6	2	3.5	56.8	3.0	3	3	5	6	175				
MN98037		60.5	31.4	60	3	15.2	7.6	66	1.61	0.392	13.0	57.3	13.6	56.2	3	4.3	58.5	2.8	3	5	3	6	185				
MN98039		59.1	24.9	24	16	14.5	7.4	66	1.51	0.406	11.8	58.2	13.2	52.6	2	5.5	60.0	4.0	3	3	3	5	168				
MN98049		58.5	27.5	54	6	16.9	7.5	80	1.75	0.413	14.6	57.1	13.6	58.2	3	3.0	60.5	2.5	3	3	3	6	215				
MN98057		57.6	26.9	48	8	16.1	7.6	67	1.61	0.385	13.8	56.6	13.4	57.6	4	6.5	59.5	4.3	3	6	3	5	205				
MN98058		57.0	26.6	44	12	15.6	7.5	60	1.58	0.395	13.6	57.1	13.2	55.8	3	4.5	58.0	3.3	3	5	6	6	198				
MN98064		59.7	29.9	78	4	16.8	7.5	81	1.75	0.426	14.4	58.7	13.3	55.8	3	7.0	58.0	3.5	3	3	6	6	196				
MN98068		59.8	24.5	36	6	16.4	7.7	57	1.60	0.399	14.5	50.5	14.0	55.8	2	2.5	58.0	2.5	3	3	3	5	195				
MN98070		59.9	28.1	37	8	16.7	7.5	65	1.74	0.411	14.3	47.7	14.2	55.5	3	6.5	57.0	3.8	3	5	3	6	203				
MN98073		61.0	29.1	47	7	17.5	7.3	86	1.63	0.423	15.3	58.4	13.2	59.3	4	5.5	61.0	3.8	3	5	3	6	212				
MN98091		58.8	30.3	52	7	16.3	7.4	79	1.53	0.405	13.9	64.0	13.6	55.5	3	5.5	56.8	4.0	3	3	6	6	191				
MN98092		60.2	29.8	54	7	15.9	7.4	86	1.60	0.409	14.1	61.9	13.1	55.8	3	7.5	58.0	4.5	3	3	3	4	197				
MN98094		59.0	33.9	65	4	15.4	7.5	67	1.53	0.405	12.5	62.4	14.2	53.8	2	6.0	56.0	3.5	3	3	3	2	5	176			
MN98095		59.7	30.3	54	6	16.1	7.5	69	1.65	0.410	13.6	60.9	13.8	55.8	3	6.5	58.0	4.0	3	5	6	6	185				
MN98097		60.6	28.5	52	6	16.2	7.3	82	1.58	0.391	12.6	60.5	14.7	54.6	3	5.8	56.5	3.5	3	5	5	5	192				
MN98098		60.3	27.5	47	8	15.9	7.4	76	1.73	0.436	13.3	57.4	14.2	55.0	3	6.0	56.5	3.3	3	4	3	6	188				
MN98109		57.3	32.3	60	5	16.8	7.2	82	1.79	0.516	13.9	60.0	13.3	57.9	3	4.3	64.0	3.8	3	3	3	6	193				
MN98113		59.6	29.2	56	4	15.6	7.4	76	1.59	0.440	13.3	63.7	13.5	52.9	2	7.5	56.0	4.3	3	3	6	5	186				
MN98115		58.9	27.5	49	7	17.3	7.3	70	1.87	0.440	14.7	58.9	13.4	56.5	3	5.0	60.5	3.3	3	5	3	4	207				
MN98117		58.9	33.8	65	3	16.4	8.1	97	1.72	0.493	14.5	61.3	13.1	58.2	4	5.3	62.0	3.3	3	5	3	6	198				
MN98118		57.4	27.0	46	6	15.7	7.8	86	1.63	0.456	13.7	62.3	14.3	54.6	3	7.0	56.8	4.0	3	5	3	6	188				

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Morris, MN, AY6		TW lb/bu	KWT gm	LG %	SM %	Wheat			Wheat			Flour			Mix		Peak Time min	Bake Abs %	Mix Time min	Dough Char			Loaf Vol cc
Variety						Pro 14%	Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Pat	DC				CC	CG	CT	
BACUP		61.3	27.0	22	13	18.4	7.2	71	1.84	0.406	15.8	51.6	14.0	60.8	4	3.8	62.5	3.0	3	3	3	6	228
VERDE		57.0	27.9	51	8	16.0	7.3	86	1.96	0.423	13.9	60.5	13.7	58.2	3	4.5	58.5	3.8	3	3	3	6	215
2375		57.4	27.9	37	13	16.1	7.4	78	1.71	0.423	13.8	58.9	13.7	58.2	4	4.8	58.5	4.0	3	3	6	6	205
MN98411		56.6	32.4	64	5	17.2	7.0	83	2.23	0.461	15.1	56.3	14.2	61.1	4	3.3	61.0	3.0	3	5	6	6	212
MN98420		59.8	26.6	33	10	16.6	7.3	72	1.92	0.499	15.2	51.6	13.3	64.0	5	4.3	62.0	3.5	3	3	6	6	192
MN98421		59.9	26.5	33	9	16.1	7.1	69	1.71	0.499	14.0	58.4	13.5	60.0	5	5.0	60.0	4.0	3	3	3	5	192
MN98422		60.3	26.8	32	8	15.8	7.4	77	1.77	0.430	14.1	56.3	14.2	61.4	4	5.0	59.5	3.5	3	5	6	5	180
MN98426		56.9	23.6	12	14	16.3	7.4	70	1.94	0.453	14.9	50.5	12.8	63.1	5	3.0	59.0	2.5	3	3	3	5	212
MN98430		59.4	26.6	30	15	15.8	7.5	81	1.83	0.441	13.4	56.5	14.4	59.0	3	2.3	57.5	2.0	3	3	3	4	198
MN98438		59.1	28.5	31	9	15.6	7.5	71	1.61	0.415	13.8	55.4	13.7	57.3	3	4.3	59.0	3.3	3	5	5	5	201
MN98443		58.2	28.2	37	7	15.7	7.6	67	1.92	0.458	13.3	55.1	14.5	57.6	3	2.5	56.5	2.3	3	3	3	6	182
MN98444		57.6	26.7	31	12	16.0	7.4	69	1.90	0.419	14.1	56.8	14.1	59.6	3	2.3	57.5	2.0	3	3	6	6	196
MN98446		60.1	27.7	34	8	15.2	7.5	60	1.75	0.418	13.3	50.9	14.1	57.9	3	2.5	58.0	2.0	3	3	3	6	178
MN98449		56.7	27.5	38	7	16.7	7.3	78	1.92	0.496	14.3	51.6	14.3	59.3	4	4.0	58.0	3.0	3	5	4	5	188
MN98472		56.2	23.9	20	17	16.6	7.5	55	1.88	0.423	14.5	41.9	14.2	57.3	3	4.0	55.5	2.8	3	3	3	6	201
MN98473		59.5	27.6	37	10	15.1	7.6	77	1.99	0.442	13.1	55.3	13.9	58.2	4	3.3	59.5	3.0	3	3	5	5	192
MN98484		57.8	25.9	30	10	16.2	7.7	78	1.86	0.453	13.9	54.2	14.3	60.5	4	5.3	60.5	4.3	3	3	6	5	198
MN98492		59.1	27.5	37	7	15.1	7.4	74	1.83	0.432	13.1	55.8	14.4	58.6	4	6.5	58.8	4.8	3	3	5	6	200
MN98493		59.0	24.8	13	15	15.8	7.9	70	1.87	0.407	13.9	50.9	14.1	61.8	5	4.3	60.0	3.3	3	4	3	6	201
MN98501		58.3	31.8	51	5	16.9	8.0	64	1.91	0.453	15.2	50.9	14.4	64.4	5	3.0	60.5	2.5	3	3	3	6	221
MN98509		60.9	29.9	52	6	15.6	8.2	48	1.80	0.384	13.5	49.1	14.2	57.3	3	4.0	55.5	2.5	3	3	5	5	192
MN98511		60.4	32.8	63	5	16.6	8.1	78	1.87	0.411	14.4	48.1	14.1	57.3	3	4.5	57.0	3.3	3	5	4	5	205
MN98512		59.8	31.4	53	5	16.4	8.2	63	1.82	0.402	14.3	53.5	14.3	60.5	4	4.5	58.5	3.3	3	5	5	5	201
MN98513		59.7	29.1	52	8	16.6	7.9	62	1.89	0.395	15.0	49.5	13.0	59.0	4	6.8	58.5	4.0	3	3	5	5	204
MN98514		60.0	29.1	47	7	15.7	7.6	61	1.80	0.397	13.7	54.7	13.4	62.7	4	3.0	58.8	2.0	3	3	6	4	188
MN98522		58.2	28.2	32	10	16.5	7.5	77	1.90	0.433	13.8	54.4	14.2	60.5	3	2.8	58.5	2.0	3	3	3	6	188
MN98543		57.8	26.2	27	12	15.2	7.8	72	1.75	0.445	13.2	55.6	13.9	59.0	3	4.8	60.5	3.5	3	3	6	6	195
MN98544		55.6	26.7	32	12	15.6	7.7	81	1.79	0.418	13.7	57.0	14.0	57.3	3	5.8	58.5	3.5	3	3	5	6	194
MN98550		58.2	25.6	13	14	16.9	7.8	76	1.87	0.476	15.2	52.1	14.0	63.1	5	4.0	60.8	2.8	3	5	6	6	214
MN98552		57.8	25.1	13	16	17.0	7.5	79	1.82	0.458	15.2	53.7	13.9	60.3	3	2.5	58.5	2.3	3	3	6	6	198

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St. Paul, MN, AY3		Wheat				Wheat				Flour				Mix		Bake		Mix		Dough Char				Loaf
TW	KWT	LG	SM	Pro	Moist	NIR	Ash	Ash	Ash	Pro	Ext	Moist	Abs	Mix	Time	Abs	Time	DC	CC	CG	CT	Vol		
lb/bu	gm	%	%	14%	%	HD	14%	14%	14%	14%	%	%	%	%	min	%	min					cc		
BACUP	59.8	25.2	15	12	17.7	7.3	76	1.96	0.446	15.7	55.7	13.4	59.3	4	3.5	60.5	2.5	3	3	3	5	193		
VERDE	55.5	25.1	46	13	15.5	7.1	80	1.85	0.444	13.4	64.4	12.8	57.9	3	4.0	58.0	3.0	3	3	3	4	198		
	57.2	29.6	47	11	15.2	7.2	78	1.90	0.449	12.7	62.6	13.2	57.3	3	4.3	58.5	2.8	3	3	3	5	192		
MN98003	59.1	24.8	38	5	16.0	7.4	75	2.07	0.422	13.7	58.1	13.6	55.8	2	4.3	56.0	2.8	3	3	3	4	198		
MN98010	58.2	24.7	32	6	16.7	7.3	79	1.85	0.445	15.0	57.3	13.3	59.3	4	4.0	59.0	3.0	3	5	3	6	212		
MN98012	57.0	26.7	62	4	17.5	7.2	83	1.95	0.438	15.3	55.6	13.5	59.3	4	4.0	59.0	3.0	3	5	3	6	208		
MN98021	58.6	24.3	32	8	15.6	7.2	76	1.92	0.504	12.8	56.5	13.7	57.6	3	4.5	57.5	4.0	3	3	5	5	196		
MN98027	55.5	26.2	36	11	16.1	7.6	66	1.99	0.460	14.0	56.3	13.8	57.3	4	5.0	57.0	3.5	3	3	3	4	192		
MN98029	59.8	23.4	19	13	15.0	7.3	73	1.99	0.491	12.5	60.3	13.4	56.9	3	3.8	56.8	3.0	3	3	6	4	187		
MN98030	60.6	26.5	47	6	15.5	7.3	92	1.89	0.445	12.8	62.0	13.9	56.5	2	3.0	56.5	2.5	3	3	3	4	182		
MN98037	57.5	29.2	52	5	16.4	7.4	82	1.95	0.471	14.0	57.5	13.2	59.6	3	2.5	57.5	2.0	3	3	3	5	191		
MN98039	57.0	22.7	11	19	14.1	7.5	57	1.96	0.459	12.1	60.8	13.4	56.2	3	4.0	56.5	3.3	3	3	5	5	178		
MN98049	57.0	25.6	41	7	17.2	7.2	86	1.99	0.447	14.8	57.7	12.9	62.7	3	2.5	62.0	2.3	3	3	6	6	212		
MN98057	56.1	25.1	34	10	16.7	7.4	75	1.93	0.398	13.5	57.7	13.4	60.3	4	4.3	59.0	3.3	3	3	3	4	208		
MN98058	56.5	25.6	41	8	15.5	7.3	65	1.91	0.425	13.0	59.3	13.8	57.6	3	4.0	56.8	2.5	3	3	6	4	202		
MN98064	58.4	27.9	70	3	16.8	7.4	88	2.00	0.479	14.5	53.0	14.5	56.2	3	7.0	56.5	3.8	3	3	6	5	182		
MN98068	57.8	21.2	14	10	16.4	7.4	68	1.93	0.441	14.4	49.3	13.5	58.2	2	2.3	58.5	2.0	3	3	6	5	193		
MN98070	59.0	26.0	23	8	17.1	7.3	73	2.04	0.466	15.0	53.5	12.9	59.3	4	4.3	60.5	3.3	3	5	3	6	206		
MN98073	58.3	26.2	34	7	16.9	7.3	81	1.93	0.455	14.8	57.2	13.2	60.5	5	4.5	61.5	2.8	3	3	5	6	192		
MN98091	57.2	28.6	44	7	15.7	7.4	69	1.92	0.466	13.7	62.1	13.7	55.5	3	4.8	55.5	2.8	3	3	3	6	180		
MN98092	57.8	28.2	45	5	16.4	7.2	79	1.88	0.454	14.0	60.9	13.5	57.6	3	6.0	57.5	3.8	3	3	3	4	192		
MN98094	57.4	31.9	68	2	15.6	7.4	79	1.91	0.459	13.3	62.3	13.2	56.9	3	4.5	56.8	3.0	3	3	3	4	178		
MN98095	57.0	27.5	44	3	15.8	7.3	85	1.94	0.474	13.1	58.3	14.1	56.5	3	5.5	56.5	3.5	3	3	5	5	189		
MN98097	58.8	26.7	40	7	16.3	7.4	91	1.94	0.464	13.3	61.7	14.0	57.6	3	4.8	58.0	2.8	3	3	6	6	190		
MN98098	55.0	25.1	37	8	15.6	7.2	72	1.99	0.478	13.1	57.4	13.8	57.3	3	4.0	57.0	3.3	3	3	6	6	198		
MN98109	55.7	28.7	53	5	17.2	7.3	82	2.02	0.577	14.8	58.9	13.5	60.3	3	3.5	59.0	2.3	3	6	6	6	200		
MN98113	57.2	27.9	55	4	16.0	7.4	74	1.88	0.452	13.6	62.0	13.9	56.5	3	6.0	57.5	3.5	3	3	3	5	205		
MN98115	56.3	24.5	55	2	16.8	7.2	82	1.91	0.498	14.2	60.1	13.7	58.2	3	4.0	58.5	2.5	3	3	6	5	192		
MN98117	55.5	30.0	56	4	16.7	7.4	91	2.06	0.542	14.5	57.4	14.1	58.6	4	5.0	60.8	3.5	3	6	3	6	205		
MN98118	54.6	23.9	32	6	15.7	7.2	82	1.91	0.550	13.5	61.4	13.6	56.5	3	4.5	56.5	3.8	3	3	3	6	197		

USDA/ARS Wheat Quality Laboratory, Fargo, ND

Advanced Yield Trials - 1999 Crop

Minnesota

St. Paul, MN, AY4		TW lb/bu	KWT gm	LG %	SM %	Wheat			Wheat			Flour			Mix		Peak Time min	Bake Abs %	Mix Time min	Dough Char			Loaf Vol cc	
Variety						Pro 14%	Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Pat	DC				CC	CG	CT		
BACUP		59.8	24.9	11	14	18.0	7.3	73	2.03	0.423	15.8	55.8	13.8	59.0	4	4	3.5	60.5	2.8	3	3	3	5	212
VERDE		56.6	26.5	55	5	15.4	7.0	72	1.84	0.427	12.5	65.1	13.9	57.3	2	2	4.0	57.0	3.0	3	3	5	4	195
2375		57.1	28.5	41	6	15.2	7.1	75	1.84	0.444	13.0	62.5	13.6	56.2	3	3	3.8	58.5	3.3	3	3	6	5	184
MN98120		56.2	30.4	63	4	15.8	7.1	78	1.87	0.453	13.9	60.7	13.1	57.3	3	3	3.5	58.8	2.8	3	3	6	6	202
MN98130		58.6	25.3	35	7	15.5	7.0	72	1.95	0.484	13.0	51.4	13.9	55.0	2	2	5.3	60.0	4.0	3	3	6	6	190
MN98131		59.0	25.8	42	5	15.7	7.3	72	1.98	0.475	13.5	51.2	13.1	58.2	3	3	4.8	61.0	3.5	3	3	6	6	192
MN98132		59.1	25.6	42	9	15.4	7.2	69	1.93	0.473	13.2	52.3	14.0	55.5	2	2	5.0	59.0	4.0	3	3	3	6	200
MN98134		56.8	29.0	55	6	15.5	7.2	67	1.95	0.499	13.2	55.6	14.0	55.5	2	2	5.8	57.0	4.5	3	3	5	5	190
MN98136		57.8	25.9	62	8	15.5	7.6	73	1.81	0.471	13.0	60.5	13.2	57.9	4	4	4.5	60.0	3.3	3	3	6	4	198
MN98137		55.5	26.8	35	11	15.7	7.4	78	1.91	0.485	13.8	58.9	13.6	59.0	5	5	5.8	60.5	4.8	3	3	6	6	212
MN98152		57.2	32.8	71	4	16.6	7.6	86	2.08	0.464	14.0	59.9	13.0	58.2	3	3	4.3	60.5	3.3	3	3	3	6	198
MN98154		53.8	22.8	12	20	14.9	7.7	67	1.94	0.512	12.4	50.7	13.6	57.3	2	2	4.5	59.0	3.3	3	3	3	5	209
MN98156		57.9	27.2	49	5	15.8	7.3	80	1.97	0.470	12.9	59.5	13.2	60.0	2	2	2.0	61.5	2.3	2	3	6	6	191
MN98159		58.0	24.3	44	9	14.6	7.5	67	1.82	0.417	11.9	60.6	14.0	53.2	2	2	7.0	56.5	5.0	3	3	5	4	180
MN98161		58.3	24.7	40	7	15.4	7.4	82	1.87	0.444	12.7	59.7	13.5	55.8	4	4	7.0	58.0	4.8	3	3	6	5	190
MN98166		55.1	26.3	44	10	16.1	7.2	63	1.98	0.430	13.9	58.1	13.8	57.6	5	5	8.8	57.5	5.3	3	3	3	5	184
MN98167		54.3	28.5	54	6	15.4	7.3	68	1.89	0.454	13.1	59.8	13.7	56.2	3	3	5.0	55.5	3.3	3	3	3	6	196
MN98168		53.7	28.2	49	6	16.9	7.1	85	2.08	0.535	14.2	58.1	13.5	60.5	4	4	4.5	62.0	3.0	3	3	3	6	202
MN98170		56.6	27.3	43	7	16.1	7.2	69	1.88	0.391	13.6	61.2	13.3	59.3	3	3	4.0	59.0	2.5	3	5	3	5	202
MN98172		57.4	27.9	51	8	15.7	7.3	70	1.92	0.263	13.3	57.3	13.6	57.3	3	3	5.0	56.8	3.3	3	3	5	5	205
MN98173		57.7	26.6	47	8	15.9	7.3	75	2.03	0.336	13.5	59.3	13.0	59.0	3	3	4.0	59.0	2.5	3	3	5	6	199
MN98174		57.3	25.8	38	8	16.1	7.1	74	1.97	0.358	12.9	59.4	13.9	56.2	3	3	6.3	57.5	3.3	3	3	3	6	200
MN98182		58.6	29.6	68	6	16.3	7.5	79	1.81	0.332	13.8	56.5	14.0	56.9	3	3	4.5	58.0	3.3	3	5	3	6	242
MN98190		57.6	27.6	50	3	16.4	7.4	77	1.83	0.282	14.2	57.0	13.9	58.2	3	3	4.3	60.5	2.8	3	5	6	6	202
MN98197		58.2	26.8	67	4	15.2	7.1	75	2.04	0.445	13.0	56.5	13.2	56.9	3	3	5.0	57.5	3.3	3	3	6	5	190
MN98201		56.6	23.3	10	15	15.7	7.3	66	1.96	0.469	13.5	58.5	13.4	58.2	3	3	4.5	60.8	3.3	3	3	6	6	189
MN98204		56.5	21.4	5	23	15.8	7.4	78	2.12	0.466	13.5	55.6	13.6	54.3	2	2	6.0	60.5	3.8	3	5	6	5	200
MN98208		57.9	24.0	31	5	16.6	7.1	69	1.89	0.417	14.6	58.9	13.6	59.0	2	2	2.3	56.8	2.3	3	3	6	4	208
MN98210		58.8	24.8	29	9	16.1	7.9	71	1.84	0.409	14.0	56.5	13.0	55.5	3	3	6.5	58.5	3.8	3	5	3	6	208
MN98215		57.2	30.5	56	3	16.3	7.6	74	1.92	0.463	13.6	61.7	12.9	55.8	4	4	7.5	60.0	5.3	3	5	3	4	202

Advanced Yield Trials - 1999 Crop

Minnesota

St. Paul, MN, AY5		Wheat				Wheat				Flour				Mix		Bake		Peak		Dough Char				Loaf
Variety	TW lb/bu	KWT gm	LG %	SM %	Pro		Moist %	NIR HD	Ash		Pro		Ext %	Moist %	Abs %	Pat	Time min	Abs %	Time min	DC	CC	CG	CT	Vol cc
					14%	17.9			14%	14%	14%	14%												
BACUP	59.9	26.2	16	10	17.9	7.5	63	1.96	0.393	16.3	56.5	13.6	58.5	3	4.3	60.0	2.5	60.0	4.3	3	4	3	5	218
VERDE 2375	56.4	27.2	61	7	15.4	7.4	80	1.91	0.397	13.0	63.4	13.3	58.2	3	3.5	56.5	3.0	56.5	3.5	3	3	6	5	204
	57.4	30.5	46	6	15.6	7.3	71	1.91	0.419	13.1	60.6	13.1	60.0	3	3.5	58.0	2.5	58.0	3.5	3	3	3	5	195
MN98221	54.4	28.6	58	3	16.4	7.4	67	2.07	0.463	14.1	57.9	13.6	57.6	3	3.5	56.0	2.5	56.0	3.5	3	4	6	5	198
MN98223	54.6	24.8	31	10	15.5	7.3	64	1.90	0.442	13.1	56.7	13.4	57.6	4	4.5	57.5	3.8	57.5	4.5	3	3	3	5	196
MN98224	58.7	25.8	41	7	15.0	7.4	84	1.85	0.458	12.5	56.9	13.8	62.7	4	3.0	60.0	2.8	60.0	3.0	3	5	6	5	190
MN98227	56.5	30.4	48	5	16.1	7.2	79	2.07	0.489	13.5	58.2	13.1	56.2	2	4.3	58.0	3.0	58.0	4.3	3	5	3	5	187
MN98229	54.9	28.7	49	7	15.1	7.3	78	1.88	0.466	12.3	57.9	13.5	54.3	3	4.3	57.0	3.3	57.0	4.3	3	3	4	182	
MN98230	58.1	25.5	37	8	14.9	7.6	71	1.99	0.488	12.2	61.3	13.2	55.3	3	4.0	58.0	3.3	58.0	4.0	3	5	3	6	178
MN98231	55.3	25.3	18	11	15.7	7.6	75	1.98	0.575	13.4	59.3	13.2	55.3	4	7.0	58.5	5.0	58.5	7.0	3	3	5	6	190
MN98284	53.7	27.9	44	6	15.7	7.5	80	1.97	0.487	13.0	56.0	13.5	57.9	5	7.5	60.0	4.8	60.0	7.5	3	3	5	6	190
MN98285	55.8	27.6	33	7	16.5	7.2	91	2.10	0.575	13.7	58.9	13.8	59.0	3	3.0	59.0	2.3	59.0	3.0	3	3	6	6	190
MN98287	54.7	27.1	23	7	16.1	7.2	86	1.97	0.536	14.0	60.6	12.4	57.9	5	6.0	61.0	5.0	61.0	6.0	3	5	3	5	202
MN98294	56.8	23.8	28	8	17.7	7.3	88	2.08	0.535	15.0	59.5	13.2	61.4	5	5.0	62.5	4.0	62.5	5.0	3	6	3	5	210
MN98299	57.9	29.8	67	2	17.5	7.3	92	2.05	0.425	14.9	59.4	13.1	58.6	3	6.5	62.0	4.0	62.0	6.5	3	6	3	6	221
MN98329	55.7	27.2	52	6	16.2	7.3	68	1.79	0.406	13.9	57.2	13.5	58.2	3	4.0	60.5	2.8	60.5	4.0	3	3	5	6	215
MN98331	58.4	30.6	62	3	16.7	7.3	80	1.88	0.397	14.0	62.0	13.0	60.3	4	3.0	60.5	2.5	60.5	3.0	3	3	6	6	209
MN98339	56.8	30.9	56	4	15.9	7.2	72	1.92	0.472	13.7	59.1	13.3	60.5	3	2.0	60.5	1.8	60.5	2.0	3	5	3	6	205
MN98344	55.7	28.6	54	6	16.2	7.0	78	1.85	0.451	13.3	61.4	13.3	59.3	2	1.5	60.5	2.0	60.5	1.5	2	4	3	6	196
MN98354	57.6	25.9	48	6	16.0	7.3	72	1.89	0.394	13.7	62.2	13.8	55.3	2	4.3	57.5	2.5	57.5	4.3	3	3	5	6	193
MN98365	55.4	25.4	43	5	15.4	7.5	78	1.93	0.455	12.8	62.0	13.4	57.3	4	6.3	59.0	4.0	59.0	6.3	3	5	6	183	
MN98366	55.9	25.2	29	11	15.4	7.4	69	1.91	0.461	12.7	60.1	13.7	57.9	4	5.5	60.0	4.0	60.0	5.5	3	3	3	5	190
MN98367	56.2	28.7	52	5	15.8	7.4	77	1.95	0.449	13.2	59.0	13.7	57.9	3	4.8	60.0	3.3	60.0	4.8	3	3	3	6	195
MN98368	55.4	28.2	47	6	15.7	7.0	77	1.94	0.450	13.0	61.7	13.8	55.0	2	5.3	61.0	4.0	61.0	5.3	3	6	3	5	208
MN98369	55.7	31.4	63	7	15.1	7.1	77	1.98	0.449	12.4	62.1	13.7	53.9	2	5.0	60.0	4.0	60.0	5.0	3	4	3	5	176
MN98383	55.4	28.3	39	6	15.5	7.3	84	1.95	0.504	12.5	60.0	13.1	56.2	3	6.0	58.0	4.5	58.0	6.0	3	5	3	5	198
MN98386	55.8	31.7	44	6	15.4	7.3	76	1.87	0.416	12.9	62.4	13.7	52.6	2	9.0	58.8	5.8	58.8	9.0	3	5	3	5	200
MN98389	54.9	29.1	47	7	15.7	7.1	72	1.93	0.487	12.4	60.5	13.5	56.5	2	3.5	58.5	2.5	58.5	3.5	3	4	6	6	193
MN98392	56.8	26.8	64	5	15.5	7.3	83	1.86	0.433	13.0	62.9	13.7	61.1	3	3.0	59.0	2.5	59.0	3.0	3	3	3	6	198
MN98399	55.2	24.6	21	13	16.0	6.9	74	2.01	0.463	13.2	59.6	13.3	57.3	2	4.0	60.5	3.3	60.5	4.0	3	3	3	6	206

Advanced Yield Trials - 1999 Crop

Minnesota

St. Paul, MN, AY6		Wheat										Flour				Mix		Bake		Peak		Mix		Dough Char		Loaf	
Variety	TW lb/bu	KWT gm	LG %	Wheat			NIR HD	Ash 14%	Ash 14%	Pro 14%	Flour		Moist %	Abs %	Mix Pat	Time min	Abs %	Time min	Mix Pat	Time min	DC	Dough Char		CT	Vol cc		
				SM %	Pro 14%	Moist %					Ext %																
BACUP	59.6	25.1	15	12	17.8	7.2	73	1.97	0.429	15.9	55.9	12.7	60.0	3	3.5	62.0	2.8	3	3	3	3	3	6	6	201		
VERDE	54.4	24.4	39	10	15.8	6.9	77	1.98	0.433	13.2	62.5	13.5	57.3	2	4.5	58.0	3.5	3	3	3	3	3	5	5	201		
2375	57.7	28.4	44	8	15.0	7.2	71	1.86	0.427	12.3	60.2	13.7	63.1	4	3.5	59.0	2.8	3	3	3	3	3	5	6	183		
MN98411	56.3	30.1	53	5	16.2	7.0	68	2.01	0.438	13.8	62.3	12.9	58.2	2	3.0	60.5	3.0	3	3	3	3	3	3	6	205		
MN98420	58.6	25.8	34	8	16.5	7.3	75	2.01	0.447	14.3	57.2	13.0	60.0	3	4.0	62.0	3.3	3	3	3	3	3	3	6	185		
MN98421	58.2	26.5	33	9	15.4	7.0	81	1.88	0.434	13.0	58.6	13.4	62.5	4	4.0	60.5	3.0	3	3	3	3	5	6	6	182		
MN98422	58.4	25.6	37	9	14.8	7.2	71	1.87	0.453	12.9	58.6	12.8	59.0	4	4.0	61.0	3.0	3	3	3	3	5	6	6	172		
MN98426	55.1	21.9	7	16	16.0	7.2	72	2.08	0.496	14.0	55.1	13.2	58.6	2	2.8	60.8	2.5	3	3	3	5	3	5	5	201		
MN98430	57.4	25.0	24	12	15.4	7.6	73	1.90	0.455	13.4	58.6	13.0	58.2	2	2.3	60.5	2.5	3	3	3	4	6	4	6	182		
MN98438	55.8	24.2	7	18	15.6	7.5	63	2.11	0.409	13.6	52.6	13.0	59.0	3	3.3	63.0	3.3	3	3	3	3	3	5	4	198		
MN98443	55.2	24.3	22	14	15.6	7.3	69	2.01	0.484	13.3	54.9	12.7	58.2	2	2.0	57.0	2.0	3	3	3	3	3	3	4	180		
MN98444	56.4	26.0	34	11	16.2	7.4	73	2.05	0.438	13.9	57.5	13.0	58.2	2	1.8	59.0	1.8	2	3	3	2	3	3	5	178		
MN98446	58.0	25.7	24	12	15.3	7.2	66	1.92	0.445	13.0	53.5	13.6	58.2	3	2.3	58.5	2.5	2	3	3	2	3	3	5	180		
MN98449	55.2	27.2	13	11	15.8	7.3	79	2.11	0.556	13.5	58.1	12.7	58.2	3	2.8	60.5	2.8	3	3	3	4	3	6	6	182		
MN98472	55.8	23.5	20	13	15.3	7.6	54	2.03	0.434	13.1	50.5	12.7	56.9	3	3.0	58.0	2.8	3	3	3	3	3	6	5	198		
MN98473	58.0	24.7	23	13	14.9	7.5	69	1.96	0.498	12.4	56.0	12.4	58.6	3	2.5	60.8	2.8	3	3	3	3	3	6	5	178		
MN98484	54.0	23.1	14	19	16.2	7.4	74	2.06	0.518	13.9	58.1	13.2	61.8	5	4.5	62.0	3.8	3	3	3	3	3	6	6	198		
MN98492	55.4	24.8	10	14	15.4	7.2	73	1.93	0.485	13.0	59.8	13.1	57.9	4	5.5	60.0	3.8	3	3	3	3	5	5	6	196		
MN98493	56.2	23.4	10	18	15.7	7.2	67	2.02	0.499	13.5	59.8	12.8	60.3	4	4.0	63.5	3.3	3	3	3	3	3	6	6	196		
MN98501	56.6	29.1	45	10	16.9	7.4	61	2.04	0.446	14.6	57.5	12.9	63.7	5	2.5	62.5	2.5	3	3	3	3	5	3	6	212		
MN98509	57.5	28.3	39	8	15.9	7.5	60	1.88	0.407	13.8	53.7	12.7	59.3	3	3.5	60.0	2.8	3	3	3	3	3	6	6	191		
MN98511	58.6	30.9	55	5	16.3	7.5	66	2.03	0.432	13.9	55.7	13.3	56.5	3	4.0	58.5	3.0	3	3	3	3	6	3	5	204		
MN98512	57.5	28.5	41	6	16.6	7.5	73	2.01	0.431	14.4	58.1	13.1	60.8	5	4.0	58.5	3.3	3	3	3	3	6	3	5	201		
MN98513	56.2	27.7	39	6	17.1	7.4	64	1.96	0.439	14.7	51.9	13.0	60.8	5	4.5	60.8	3.3	3	3	3	3	5	3	5	206		
MN98514	57.5	27.5	44	6	15.7	7.3	64	1.87	0.409	13.6	57.2	13.3	60.8	3	2.8	59.5	2.3	3	3	3	3	3	5	6	190		
MN98522	56.6	26.7	27	11	16.6	7.3	80	1.95	0.433	14.1	57.2	13.7	60.3	3	2.3	60.5	2.0	3	3	3	3	3	3	6	192		
MN98543	55.4	24.9	31	7	14.7	7.6	72	1.90	0.490	12.4	60.1	13.0	56.2	3	4.5	58.5	3.5	3	3	3	3	5	3	6	190		
MN98544	55.0	26.3	39	1	16.1	7.2	75	1.76	0.421	13.6	63.2	12.6	56.5	3	4.0	60.8	3.3	3	3	3	3	3	5	5	200		
MN98550	56.1	24.7	12	11	17.2	7.3	74	1.98	0.489	14.5	52.5	13.9	63.4	4	3.0	63.5	2.5	3	3	3	3	5	5	5	212		
MN98552	55.7	24.4	13	14	17.4	7.1	81	2.05	0.493	15.1	54.7	12.8	61.1	3	1.5	62.5	2.0	3	3	3	3	3	6	6	195		

Section VI

Advanced Yield Trials – South Dakota

– 1998 Crop

LOCATION	PAGE #
Brookings	1
DayCo	2
High	3
Selby	4

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Brookings
Nursery: AYT

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Bake Pat	Mix Time	Rating Scores				Loaf Vol (cc)		
					A	B	C	D		HI	Prot		Ash	Prot				Ash	D	C	C		G	T
CHRIS	57.8	25.7	41	11	0	0	3	97	113	53	13.5	1.98	60.2	13.3	0.35	50.2	2	56.5	3.75	3	3	5	5	202
BUTTE 86	60.8	32.8	75	2	1	1	4	94	95	61	13.2	1.85	62.5	12.2	0.40	57.6	3	57.5	2.50	3	3	5	5	185
	62.8	32.0	76	1	5	17	18	60	77	52	13.1	1.67	61.3	12.8	0.34	57.6	3	57.5	2.50	3	5	5	5	190
SHARP	61.0	32.1	63	2	1	1	6	92	101	49	12.7	1.75	63.8	11.7	0.37	56.2	3	56.5	2.75	3	3	6	5	178
2375	60.9	31.0	76	2	1	0	2	97	103	67	12.6	1.70	63.7	11.8	0.41	58.2	4	58.5	3.50	3	3	5	5	182
RUSS	60.5	29.5	60	5	0	0	4	96	101	63	13.2	1.78	65.9	12.1	0.37	57.3	4	57.0	3.50	3	3	5	5	188
OXEN	60.1	29.5	53	9	1	1	10	88	89	44	13.0	1.94	60.0	11.7	0.38	56.2	3	58.5	2.75	3	3	5	5	190
FORGE	63.5	28.8	62	4	0	1	7	92	97	51	13.7	1.75	61.3	12.7	0.37	57.3	3	57.0	2.75	3	5	5	5	182
INGOT	61.4	29.4	50	7	2	2	6	90	97	58	12.2	1.66	62.2	11.3	0.42	52.9	3	56.0	4.25	2	4	6	5	189
SD3219	61.5	30.5	54	6	2	6	19	73	85	41	13.1	1.64	57.8	12.7	0.37	55.0	5	57.0	4.00	3	3	6	5	182
SD8108	59.8	31.3	61	4	2	2	7	89	93	61	13.5	1.78	63.3	12.4	0.42	57.3	4	57.0	3.00	3	3	5	5	180
SD3310	62.3	30.6	79	3	1	8	17	74	86	41	12.8	1.59	60.3	12.7	0.36	56.2	3	57.5	3.25	3	3	3	5	192
SD3345	63.0	30.7	75	2	0	1	6	93	100	65	13.0	1.74	59.9	12.2	0.37	56.9	3	58.8	3.00	3	3	3	5	180
SD3348	60.6	28.4	58	5	0	3	11	86	90	46	13.0	1.53	60.3	12.4	0.34	57.3	4	57.0	4.50	3	3	3	5	188
SD3356	61.0	26.1	35	8	1	2	2	95	98	63	13.6	1.77	63.3	12.8	0.37	57.3	3	57.0	4.00	3	3	4	5	192
SD3335	62.8	34.7	82	2	0	2	10	88	95	65	12.6	1.62	68.6	11.9	0.43	54.6	2	56.8	2.50	2	3	3	5	180
SD3355	58.5	29.6	46	10	2	2	8	88	88	56	13.5	1.85	61.8	12.5	0.43	56.2	2	58.5	2.75	2	5	3	5	195
SD3367	62.2	31.7	67	3	1	4	6	89	93	60	13.6	1.81	59.5	12.5	0.34	55.8	2	56.0	2.50	2	5	3	5	190
SD3400	62.7	31.5	43	5	3	2	6	89	102	62	13.4	1.72	62.2	13.1	0.41	55.5	3	57.5	2.50	3	4	5	5	188
SD3407	61.7	35.3	89	3	1	5	13	81	88	59	12.0	1.61	61.3	10.9	0.35	52.9	3	56.0	3.50	3	5	3	5	175
SD3411	60.9	30.9	55	8	1	2	8	89	98	51	12.2	1.85	59.3	11.8	0.38	55.0	3	57.0	4.00	3	3	3	5	185
SD3414	62.6	29.4	34	8	1	3	7	89	104	63	13.1	1.63	66.0	12.2	0.38	55.8	4	58.0	4.00	3	3	3	5	175
SD3423	61.0	35.4	78	2	7	9	14	70	81	61	13.9	1.66	63.3	13.1	0.37	59.0	3	59.0	2.75	3	3	3	5	200
SD3455	61.5	29.5	45	10	4	3	9	84	92	54	13.1	1.78	60.6	12.3	0.38	57.3	3	57.0	3.00	3	3	5	5	188

USDA/ARS Wheat Quality Laboratory

Advanced Yield Trials - Hard Red Spring Wheat - 1998 Crop

Location: Selby
Nursery: AYT

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	Bake Abs	Mix Time	Rating Scores					Loaf Vol (cc)
					A	B	C	D		HI	Prot		Ash	Prot					Ash	D	C	C	T	
CHRIS	57.6	25.9	42	8	3	4	3	90	100	57	15.4	1.78	61.9	14.3	0.43	56.5	3	58.5	2.50	3	3	3	5	205
BUTTE 86	57.3	30.2	61	3	1	2	5	92	103	62	14.8	1.63	60.4	13.5	0.39	56.9	3	56.8	2.50	3	4	6	5	192
SHARP	59.2	27.9	59	3	2	3	14	81	86	53	14.5	1.65	60.3	13.6	0.36	57.9	3	58.0	2.50	3	3	5	5	193
2375	56.2	28.7	38	4	1	3	14	82	90	58	14.6	1.70	57.4	13.4	0.35	57.3	3	57.0	2.50	3	3	6	5	190
RUSS	54.9	26.2	48	8	1	0	6	93	100	56	14.4	1.71	60.5	12.9	0.40	57.6	4	61.5	3.75	3	4	6	5	189
OXEN	57.9	26.8	53	5	0	0	8	92	107	66	14.4	1.67	64.8	13.1	0.33	56.2	4	58.5	3.75	3	4	3	5	198
FORGE	58.6	29.7	54	5	2	3	11	84	90	55	14.7	1.69	60.5	13.4	0.31	56.5	3	58.5	3.00	3	4	3	5	197
INGOT	60.6	27.9	42	5	1	3	7	89	97	58	15.2	1.66	58.5	12.8	0.33	56.9	4	58.8	3.00	3	3	6	6	192
SD8108	58.7	27.7	48	6	2	6	21	71	76	39	14.4	1.59	50.9	12.8	0.32	52.6	4	54.8	3.50	3	3	3	5	198
SD8119	55.8	27.1	50	6	1	3	9	87	79	61	14.7	1.63	61.6	12.9	0.38	56.5	3	58.5	3.25	3	4	5	5	200
SD3310	58.7	28.9	62	2	2	9	24	65	74	51	14.5	1.57	58.3	13.7	0.30	56.2	3	56.5	2.75	3	1	3	4	223
SD3345	58.5	27.6	45	5	1	1	4	94	103	60	14.8	1.67	60.0	13.4	0.35	56.9	4	58.8	3.25	3	3	3	5	195
SD3348	56.5	27.0	52	6	1	5	9	85	97	47	14.4	1.50	64.0	13.0	0.31	56.2	4	58.5	3.75	3	4	3	5	190
SD3356	57.2	25.4	37	6	1	2	4	93	99	65	14.8	1.52	62.5	13.1	0.33	57.9	5	58.0	3.25	3	3	3	5	190
SD3335	57.8	30.3	65	4	1	3	15	81	81	61	14.2	1.46	62.8	12.6	0.37	56.5	2	58.5	2.75	2	1	6	5	195
SD3355	57.6	27.5	54	7	0	3	15	82	87	60	13.8	1.65	61.7	12.3	0.39	55.5	3	57.5	2.50	3	4	6	5	200
SD3367	57.9	29.5	65	2	1	2	13	84	88	60	14.6	1.59	64.3	13.8	0.46	57.3	2	57.0	2.50	3	4	3	6	198
SD3400	59.2	26.1	25	2	1	2	2	95	118	65	14.9	1.59	59.3	13.8	0.37	57.3	4	59.0	2.75	3	4	3	6	200
SD3407	57.5	30.0	58	5	1	4	13	82	92	60	14.0	1.56	58.8	12.1	0.34	55.5	4	59.5	3.50	3	3	5	5	195
SD3411	56.0	27.1	40	10	1	3	4	92	101	50	14.3	1.63	57.1	13.0	0.37	55.3	4	58.5	4.00	3	4	3	5	205
SD3414	58.5	25.2	15	14	1	1	5	93	108	66	14.6	1.47	60.4	13.6	0.35	55.5	4	57.5	4.75	3	3	4	5	190
SD3423	56.8	28.9	55	4	1	1	7	91	96	53	14.7	1.58	58.3	13.5	0.37	57.9	3	61.0	2.75	3	5	3	5	217
SD3455	59.7	29.2	59	4	1	2	8	89	98	52	14.0	1.59	58.5	12.9	0.33	56.5	2	58.5	3.00	3	3	3	5	208

Section VII

Advanced Yield Trials – South Dakota – 1999 Crop

LOCATION	PAGE #
Brookings	1
Groton	2
Selby	3
Watertown	4

Advanced Yield Trials - 1999 Crop

South Dakota

Brookings, SD, AYT 99				Wheat				Wheat				Flour				Mix		Peak		Bake		Mix		Dough Char				Loaf	
Variety	TW lb/bu	KWT gm	LG %	SM %	Pro 14%	Moist %	NIR HD	Ash 14%	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Pat	Mix Time min	Abs %	Time min	DC	CC	CG	CT	Vol cc							
CHRIS	58.2	24.8	48	7	16.0	8.2	94	2.02	0.439	13.7	56.4	13.9	56.5	2	3.0	57.5	3.0	3	3	3	5	204							
BUTTE 86	60.9	36.9	87	1	15.7	8.2	87	1.73	0.387	12.8	56.3	13.8	52.3	1	3.0	56.8	2.5	3	3	5	5	184							
ND2375	61.0	35.5	70	1	14.8	8.5	98	1.83	0.431	12.1	58.8	14.1	56.2	2	2.8	58.5	3.8	3	3	5	4	180							
RUSS	61.6	34.1	84	2	14.1	8.3	81	1.74	0.442	11.5	60.5	13.7	57.6	3	3.3	57.5	4.0	3	3	6	5	171							
OXEN	60.1	31.8	68	4	14.6	8.3	86	1.84	0.377	12.2	61.9	14.3	57.9	3	3.5	58.0	5.0	3	3	6	5	190							
FORGE	62.5	36.9	82	2	15.0	8.4	89	1.85	0.361	11.9	58.3	14.1	55.8	2	3.0	58.0	3.0	3	3	5	4	180							
INGOT	63.0	34.4	74	4	15.8	8.2	84	1.97	0.374	12.9	60.8	13.9	56.5	2	3.0	58.5	3.0	3	4	6	6	178							
EMBER	62.7	31.4	71	4	12.9	8.0	83	1.64	0.400	10.2	61.4	13.6	51.9	2	4.0	56.0	8.0	3	1	6	5	150							
SD8119	61.3	35.2	78	3	14.5	8.5	85	1.74	0.425	11.7	59.4	14.2	55.8	2	3.3	54.8	3.3	3	4	6	4	165							
SD3110	62.6	35.0	81	2	14.5	8.4	66	1.79	0.346	12.3	56.4	14.4	55.0	2	3.0	55.0	5.3	3	4	6	5	175							
SD3345	63.1	34.7	87	2	15.0	8.4	88	1.77	0.404	12.6	58.8	13.7	57.3	2	2.5	59.0	3.0	2	4	6	4	172							
SD3348	60.3	33.9	76	4	14.8	8.3	78	1.83	0.364	12.2	58.3	14.7	55.5	3	7.3	55.5	4.0	3	4	3	4	180							
SD3407	60.6	37.6	74	4	13.6	8.2	90	1.73	0.392	10.5	58.8	13.6	53.2	2	5.0	58.0	3.5	3	4	6	5	160							
SD3414	62.5	31.2	76	2	15.1	7.9	89	1.75	0.393	12.6	60.8	13.4	55.5	3	5.5	57.5	4.0	3	3	6	4	172							
SD3335	61.8	37.2	83	2	14.2	8.3	88	1.76	0.403	11.5	62.1	13.8	56.2	2	3.5	58.5	2.5	3	3	6	4	182							
SD3367	61.0	37.7	85	2	16.2	8.3	87	1.87	0.313	13.8	55.9	12.8	59.3	2	2.0	61.0	2.3	3	6	5	6	193							
SD3411	60.6	33.2	68	5	13.9	8.3	81	1.80	0.397	11.4	53.3	12.7	55.8	3	5.3	58.0	3.5	3	3	3	6	172							
SD3470	62.1	35.1	81	3	14.6	8.1	97	1.84	0.428	12.1	62.6	14.2	56.2	2	4.5	56.5	3.0	3	4	6	6	182							
SD3471	62.6	32.4	76	4	14.6	8.1	88	1.80	0.431	12.2	63.0	13.3	56.5	2	4.5	57.0	3.0	3	3	6	5	172							
SD3475	62.9	34.2	78	3	14.0	8.3	88	1.74	0.431	11.5	59.9	13.8	55.3	2	5.0	55.0	3.0	2	3	5	5	184							
SD3478	61.1	25.4	82	2	15.2	8.4	80	1.82	0.400	12.2	61.0	13.6	58.2	3	4.8	59.5	3.5	3	5	6	6	191							
SD3480	60.7	34.7	81	3	14.1	8.3	90	1.82	0.391	11.5	58.7	14	56.2	3	5.5	58.5	4.0	3	3	6	6	200							
SD3496	62.2	33.7	80	2	14.5	8.2	75	1.82	0.372	11.6	54.0	14.8	56.2	2	7.5	56.5	4.0	3	4	6	5	188							
SD3506	63.4	32.8	75	3	14.7	8.0	81	1.81	0.370	12.1	58.0	13.8	54.6	2	5.5	56.0	3.3	3	3	5	5	192							
SD3518	61.0	32.6	65	4	14.4	8.2	79	1.83	0.420	11.1	56.4	14.7	51.6	2	6.5	55.5	4.0	3	3	6	6	174							
SD3522	61.1	35.0	75	3	15.0	8.2	79	1.75	0.386	12.4	60.2	13.4	55.8	1	2.3	55.0	2.3	2	3	2	5	184							
SD3523	63.2	29.2	56	4	14.9	8.1	84	1.80	0.421	12.0	53.1	14.4	56.2	1	2.0	56.5	2.0	2	4	3	6	182							

Advanced Yield Trials - 1999 Crop

South Dakota

Groton, SD, AYT 99										Wheat			Wheat			Wheat			Flour			Mix			Bake		Mix		Dough Char			Loaf	
Variety	TW	KWT	LG	SM	Pro	Moist	NIR	Ash	Ash	Pro	Ext	Moist	Abs	Mix	Pat	Time	Abs	Time	Time	DC	CC	CG	CT	Vol	cc								
	lb/bu	gm	%	%	0.1	%	HD	0.14	14%	14%	%	%	%	%		min	%	min	min														
CHRIS	54.8	50.5	9	22	16.2	7.5	74	1.93	0.416	14.1	56.6	12.9	55	2	3.0	3.0	57.0	3.0	3.0	2	3	6	4	202									
BUTTE 86	55.1	23.9	26	12	16.7	7.8	79	1.93	0.409	13.9	58.4	12.8	56.5	2	3.5	3.0	58.5	3.0	3.5	3	3	6	5	186									
ND2375	55.5	22.7	11	21	15.6	7.8	75	1.98	0.420	13.1	56.4	13.1	55	2	3.5	3.0	57.0	3.0	3.5	3	3	6	6	187									
RUSS	55.8	24.0	34	10	16.0	7.6	78	1.97	0.438	13.3	54.9	13.4	56.9	3	5.5	3.8	60.0	3.8	5.5	3	3	6	5	200									
OXEN	53.4	19.2	6	22	15.4	7.8	75	1.92	0.381	12.8	57.8	13.3	55.5	3	7.0	4.0	57.5	4.0	7.0	3	3	6	6	197									
FORGE	57.3	23.0	21	12	15.2	7.7	61	1.89	0.386	12.3	55.9	13.0	56.9	2	4.0	3.3	56.8	3.3	4.0	3	3	6	4	182									
INGOT	58.9	22.2	11	17	15.8	7.7	64	1.86	0.391	13.4	57.6	13.1	57.6	3	5.0	4.0	59.5	4.0	5.0	3	3	6	4	197									
EMBER	56.2	21.9	10	20	14.8	8.0	68	1.77	0.410	12.2	56.1	13.4	54.3	3	7.0	4.5	56.5	4.5	7.0	3	3	6	5	175									
SD8119	55.1	23.6	41	11	15.8	8.2	78	2.01	0.384	13.1	56.3	13.3	57.6	3	4.0	3.0	57.5	3.0	4.0	3	4	6	5	187									
SD3110	58.3	24.6	41	8	15.9	8.4	63	1.91	0.363	14.0	49.8	13.5	58.2	3	3.5	2.5	56.5	2.5	3.5	3	1	3	4	206									
SD3345	58.3	26.4	33	9	16.1	8.1	73	1.96	0.428	13.4	55.9	13.3	57.6	3	3.5	3.0	56.8	3.0	3.5	3	4	6	6	205									
SD3348	56.2	26.7	43	10	15.1	8.2	84	1.74	0.406	12.0	52.6	13.7	54.6	3	5.8	4.0	56.8	4.0	5.8	3	3	6	6	191									
SD3407	56.5	23.9	27	11	15.7	7.9	57	1.72	0.368	13.1	61.5	13.5	57.3	3	6.5	4.3	58.5	4.3	6.5	3	5	6	5	206									
SD3414	58.9	22.1	10	20	16.1	7.7	80	1.83	0.428	13.5	61.3	13.6	56.5	4	7.0	4.8	58.0	4.8	7.0	3	3	3	5	210									
SD3335	57.4	28.9	46	9	16.1	7.6	70	1.71	0.445	13.9	66.2	12.8	59.3	3	3.3	2.8	57.0	2.8	3.3	3	3	6	5	207									
SD3367	57.0	26.7	46	8	16.9	7.9	76	1.92	0.434	14.1	58.8	13.1	58.2	3	2.8	2.3	58.5	2.3	2.8	3	3	3	6	215									
SD3411	55.0	23.1	16	18	15.9	7.9	61	2.03	0.420	13.7	52.9	13.5	55.3	3	6.0	4.0	57.0	4.0	6.0	3	5	6	6	210									
SD3470	56.9	25.6	38	11	15.8	8.1	78	1.90	0.459	13.3	62.1	13.9	55.8	2	4.5	3.3	56.0	3.3	4.5	3	1	6	6	205									
SD3471	56.9	25.6	41	9	15.4	8.2	79	1.91	0.465	13.6	62.9	13.1	57.6	3	4.0	3.0	57.5	3.0	4.0	3	1	6	6	187									
SD3475	58.3	23.8	27	13	15.1	8.1	67	1.73	0.451	12.2	61.6	13.4	55.3	2	4.3	3.5	57.0	3.5	4.3	3	4	6	6	196									
SD3478	57.6	26.1	47	7	15.8	7.7	80	1.84	0.425	13.1	61.6	13.0	57.6	3	4.3	3.3	59.5	3.3	4.3	3	3	6	6	205									
SD3480	55.7	25.5	32	10	15.5	7.6	77	1.74	0.440	12.6	62.6	13.4	56.5	3	4.8	3.8	58.5	3.8	4.8	3	3	6	6	192									
SD3496	56.6	23.4	21	11	15.9	7.7	53	1.93	0.418	13.4	53.1	13.0	56.9	4	5.5	4.0	58.5	4.0	5.5	3	4	6	5	215									
SD29	58.2	23.6	17	15	15.1	7.7	54	1.79	0.390	12.6	55.7	13.6	54.3	2	6.8	4.0	57.0	4.0	6.8	3	3	5	5	205									
SD3506	57.8	25.2	34	12	16.3	7.8	58	1.89	0.383	13.9	57.3	13.3	57.6	4	4.0	3.3	57.5	3.3	4.0	3	5	5	6	212									
SD3518	57.0	25.3	27	10	15.9	7.7	76	1.99	0.420	12.9	55.7	13.2	53.2	3	6.0	3.8	55.0	3.8	6.0	3	4	6	6	196									
SD3522	55.4	25.1	27	11	16.2	7.6	63	1.85	0.401	14.2	56.5	12.9	58.2	2	2.5	2.0	56.5	2.0	2.5	2	4	5	4	183									
SD3523	60.5	24.7	25	11	15.3	7.6	85	1.81	0.441	12.6	56.0	12.9	56.5	1	1.5	2.0	58.5	2.0	1.5	2	1	5	5	170									

Advanced Yield Trials - 1999 Crop

South Dakota

Selby, SD, AYT 99		Wheat			Wheat			Flour			Mix		Bake	Mix	Loaf			
Variety	TW lb/bu	KWT gm	LG %	SM %	Pro 0.1	Moist %	NIR HD	Ash 0.14	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Time min	Time min	Vol cc		
CHRIS	57.2	21.4	20	19	16.0	7.4	79	1.82	0.407	13.4	59.0	13.2	57.3	3	3.0	2.3	5	193
BUTTE 86	58.7	28.0	45	7	15.4	7.5	88	1.61	0.430	12.8	63.2	12.6	58.2	3	3.0	2.8	6	187
ND2375	58.6	27.1	10	7	15.0	7.6	77	1.81	0.427	12.6	61.9	12.6	57.3	3	3.5	2.8	5	186
RUSS	57.8	25.8	24	10	15.5	7.5	78	1.72	0.410	13.4	57.5	13.1	57.9	4	5.0	3.8	6	196
OXEN	56.1	23.1	16	10	15.9	7.4	81	1.73	0.354	13.4	62.4	13.0	58.2	4	5.0	3.8	5	192
FORGE	59.9	27.0	32	10	15.1	7.3	69	1.66	0.239	13.0	61.2	12.8	57.3	3	4.0	3.0	6	195
INGOT	63.6	29.6	58	5	16.3	7.4	77	1.68	0.268	13.8	65.6	12.8	57.9	4	4.5	3.3	6	210
EMBER	60.5	26.7	29	10	15.0	7.6	80	1.60	0.372	12.3	58.5	13.1	53.8	3	6.5	4.0	5	177
SD8119	58.4	26.2	44	9	15.7	7.4	78	1.61	0.403	13.1	58.0	13.3	59.0	3	4.3	2.5	6	180
SD3110	61.1	28.9	50	5	15.3	7.9	56	1.53	0.342	13.3	56.0	13.0	58.2	3	4.0	2.5	5	196
SD3345	62.6	29.2	57	4	15.7	7.6	78	1.62	0.368	13.1	61.6	12.9	57.6	4	4.0	2.8	5	187
SD3348	59.3	27.3	39	11	15.6	7.4	71	1.44	0.325	13.3	61.1	13.5	57.6	4	6.0	4.0	4	192
SD3407	58.4	28.6	41	12	14.7	7.5	87	1.74	0.370	11.9	56.5	13.2	55.5	4	5.5	3.5	5	173
SD3414	58.8	21.6	7	26	15.4	7.5	84	1.66	0.395	13.0	57.8	13.5	55.8	4	7.0	4.0	6	171
SD3335	61.3	31.9	63	5	15.1	7.6	91	1.58	0.420	12.6	63.5	12.9	59.0	3	4.0	2.8	6	192
SD3367	61.0	28.3	53	5	15.2	8.0	82	1.51	0.352	12.8	57.8	13.4	56.2	2	3.8	2.8	6	193
SD3411	57.7	25.4	18	12	15.4	7.8	69	1.72	0.392	12.8	52.4	13.3	52.9	2	7.3	4.0	5	192
SD3470	59.1	27.4	52	6	15.6	7.8	92	1.71	0.394	13.0	58.9	13.6	57.3	3	4.5	3.3	5	178
SD3471	58.7	27.2	44	8	15.5	7.5	84	1.75	0.425	13.5	60.2	13.0	57.3	3	4.5	3.3	6	188
SD3475	60.8	25.3	41	12	14.8	7.8	87	1.69	0.445	12.2	57.5	13.3	55.8	2	5.0	3.8	6	192
SD3478	61.3	22.8	62	4	15.6	7.7	85	1.66	0.354	12.9	60.7	13.4	57.9	3	5.3	3.8	6	208
SD3480	58.3	27.1	36	8	15.1	7.7	81	1.70	0.392	12.7	60.7	13.3	58.2	4	5.5	3.8	6	192
SD3496	59.8	25.2	38	8	15.8	7.8	67	1.71	0.376	13.4	57.9	12.6	59.0	4	5.0	3.5	6	201
SD3506	61.0	26.7	41	10	15.5	7.7	74	1.64	0.358	12.9	59.7	13.0	56.2	4	6.0	4.0	6	195
SD3518	59.2	26.9	33	14	14.7	7.6	75	1.78	0.392	12.0	56.5	13.2	53.8	2	5.0	4.0	5	193
SD3522	59.4	29.8	48	6	15.1	7.6	69	1.56	0.368	12.9	60.2	13.3	57.3	2	3.0	2.3	6	186
SD3523	63.0	27.9	46	6	15.5	7.6	86	1.51	0.394	12.8	55.2	12.8	57.9	1	2.0	2.0	5	180

Advanced Yield Trials - 1999 Crop

South Dakota

Watertown, SD, AYT 99				Wheat				Wheat				Flour				Mix		Peak Time min	Bake Abs %	Mix Time min	Dough Char			Loaf Vol cc
Variety	TW lb/bu	KWT gm	LG %	SM %	Pro 0.1	Moist %	NIR HD	Ash 0.14	Ash 14%	Pro 14%	Ext %	Moist %	Abs %	Pat	DC	CC	CG				CT			
CHRIS	55.8	22.4	17	23	15.5	7.5	74	1.83	0.422	13.9	57.8	12.8	56.2	2	2.3	58.5	2.0	3	3	5	4	196		
BUTTE 86	57.7	27.0	45	8	15.2	7.5	83	1.77	0.396	12.5	57.8	13.4	55.8	2	3.0	58.0	2.5	3	3	5	4	194		
ND2375	56.0	24.2	13	17	14.9	7.7	80	1.83	0.447	12.4	55.7	13.1	55.0	2	3.5	56.5	2.8	3	4	5	5	200		
RUSS	57.9	23.6	38	10	14.6	7.7	78	1.88	0.466	12.4	57.1	12.7	57.3	2	3.0	59.0	2.8	3	4	5	5	188		
OXEN	56.6	24.4	33	11	14.7	7.6	79	1.72	0.392	12.1	60.8	13.4	55.8	4	5.5	58.0	3.5	3	4	5	4	188		
FORGE	57.8	23.5	22	7	13.6	7.5	58	1.78	0.411	11.0	54.5	13.2	52.6	2	4.0	54.8	2.5	3	1	3	4	174		
INGOT	58.1	23.4	18	17	14.2	7.5	76	1.85	0.458	12.1	54.0	13.0	55.3	3	4.5	55.0	3.3	3	4	5	5	192		
EMBER	58.2	23.9	27	16	13.8	7.7	73	1.82	0.426	11.5	57.1	13.4	52.9	2	5.3	54.8	4.0	3	1	5	6	186		
SD8119	55.8	24.4	34	11	14.8	7.7	76	1.82	0.478	12.4	57.1	13.3	59.0	3	4.0	57.5	3.5	3	1	5	6	191		
SD3110	59.4	26.7	45	8	14.7	8.0	52	1.55	0.371	12.7	53.8	13.6	56.5	2	3.8	58.5	2.5	3	3	6	6	203		
SD3345	57.4	23.1	23	6	15.5	7.8	88	1.81	0.463	13.7	58.4	13.1	59.3	3	3.0	61.0	2.8	3	3	6	6	208		
SD3348	58.6	27.9	47	10	14.3	7.8	64	1.74	0.383	12.0	58.3	13.1	56.5	3	4.0	56.5	3.5	3	5	6	6	191		
SD3407	56.8	27.1	34	12	14.5	7.7	71	1.67	0.413	11.9	54.0	13.2	55.5	3	4.0	57.5	3.8	3	3	5	4	186		
SD3414	57.8	23.7	7	23	14.8	7.4	79	1.75	0.418	12.4	55.5	13.6	54.3	3	6.0	52.5	4.8	3	3	5	5	182		
SD3335	57.9	28.0	47	9	13.7	7.7	78	1.90	0.439	11.7	61.2	12.7	56.5	3	3.3	58.5	3.5	3	3	3	5	187		
SD3367	59.1	27.0	39	9	15.2	7.8	71	1.86	0.421	12.8	58.2	13.1	57.6	3	2.8	55.5	2.3	2	3	4	6	187		
SD3411	59.8	26.5	47	9	14.0	7.9	69	1.97	0.411	11.7	52.4	13.3	54.3	2	3.3	56.5	3.3	3	4	6	6	180		
SD3470	56.1	24.2	31	8	15.3	7.7	72	1.90	0.483	12.8	53.3	14.0	56.5	3	4.3	56.5	3.5	3	1	6	6	184		
SD3471	55.6	23.8	30	10	15.2	7.6	66	1.87																
SD3475	59.1	25.2	29	10	14.1	7.5	64	1.98	0.447	11.7	54.7	13.5	55.5	2	4.8	57.5	3.0	3	4	3	6	191		
SD3478	59.9	30.1	62	5	15.5	7.4	81	1.80	0.362	13.0	61.4	13.6	59.0	4	4.0	59.0	2.5	3	3	6	6	199		
SD3480	58.4	28.7	47	8	14.3	7.4	84	1.64	0.383	11.7	57.7	13.9	56.5	2	4.3	56.5	3.3	3	4	3	4	202		
SD3496	57.0	23.9			15.0	7.6	69	1.75	0.414	12.8	49.5	13.7	56.5	4	6.0	56.5	4.0	3	1	5	5	203		
SD3506	60.3	28.5	34	8	14.7	7.9	75	1.69	0.390	12.4	56.9	13.1	55.5	3	4.5	57.5	3.3	3	5	3	5	196		
SD3518	60.1	28.3	42	7	14.1	7.9	68	1.73	0.365	11.2	51.2	14.8	51.6	2	7.0	53.5	4.0	3	3	5	5	188		
SD3522	57.8	27.2	42	10	15.3	7.5	63	1.70	0.369	12.8	52.3	14.0	55.5	2	3.5	55.5	3.3	3	4	3	6	206		
SD3523	57.6	25.6	30	10	14.3	7.3	62	1.81	0.385	12.1	53.3	13.1	56.5	2	3.0	58.5	2.8	3	5	3	6	205		

Section VIII

Preliminary Yield Trials

– 1998 Crop

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Preliminary Yield Trials - 1998 Crop

Location: Brookings
Nursery: PPY

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs		Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash	Abs		
RUSS	60.5	30.6	66	4	0	1		90	91.2	12.7	1.75	12.0	0.42	56.2		4
OXEN	60.8	28.2	55	6	1	3		89	92.4	13.1	1.74	11.8	0.32	55.5		5
SD3497	63.1	27.3	54	5	2	4		85	92.9	12.0	1.79	11.3	0.38	54.3		4
SD3498	62.4	27.7	34	5	1	2		87	94.5	12.5	1.56	11.8	0.34	53.2		3
SD3499	63.6	29.4	52	2	1	3		83	91.9	13.2	1.73	12.5	0.36	55.0		3
SD3505	62.0	30.4	73	3	0	1		86	86.9	12.7	1.75	11.4	0.34	53.2		3
SD3506	62.8	30.0	73	3	1	3		84	85.0	12.7	1.82	11.8	0.34	53.2		3
SD3507	62.5	31.3	74	3	0	5		75	82.0	12.9	1.72	11.8	0.34	54.3		3
SD3518	61.0	29.1	44	6	0	1		97	96.0	12.9	1.86	11.7	0.40	52.2		3
SD3519	60.2	27.2	36	3	0	0		91	94.8	12.6	1.78	11.0	0.40	51.6		2
SD3520	60.4	28.0	47	5	0	3		88	90.9	12.0	1.80	10.8	0.39	50.8		2
SD3522	61.0	32.5	75	2	1	10		73	81.1	13.0	1.71	11.8	0.40	53.8		3
SD3523	63.2	29.0	43	2	1	1		94	102.0	13.1	1.77	11.6	0.42	54.6		1
SD3524	63.2	28.8	46	4	0	1		92	100.9	13.2	1.69	11.8	0.42	55.8		1
SD3525	62.5	27.7	51	3	0	3		89	89.0	13.0	1.72	11.8	0.41	53.8		1
SD3526	62.6	27.6	50	3	1	3		89	95.1	12.8	1.77	11.7	0.36	55.0		1

Preliminary Yield Trials - 1998 Crop

Location: Selby
Nursery: PPY

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash		
RUSS	56.4	27.4	64	6	0	2	7	91	101.5	13.5	1.79	12.3	0.41	56.2	3
OXEN	56.4	28.1	64	5	0	2	8	90	104.8	14.0	1.64	12.5	0.34	55.0	3
SD3497	59.5	26.2	41	5	1	3	6	90	99.9	14.1	1.56	12.4	0.31	55.0	3
SD3498	59.4	27.3	46	4	2	5	12	81	92.6	13.9	1.57	12.8	0.35	53.2	3
SD3499	59.7	27.7	52	4	3	6	16	75	89.8	14.0	1.61	12.5	0.33	55.3	3
SD3505	59.9	31.2	77	3	1	6	9	84	90.9	13.7	1.50	12.4	0.30	54.3	3
SD3506	60.5	29.9	71	3	1	4	15	80	94.2	13.9	1.32	12.7	0.32	56.5	3
SD3507	60.5	30.6	77	2	0	4	12	84	92.5	14.1	1.47	12.5	0.31	56.2	3
SD3518	57.6	28.7	74	4	0	2	7	91	101.7	14.0	1.75	11.9	0.36	55.0	3
SD3519	57.4	26.9	42	7	0	2	6	92	105.9	13.4	1.71	11.7	0.31	52.6	3
SD3520	57.4	27.9	57	4	1	3	7	89	97.2	13.1	1.69	11.5	0.37	54.3	2
SD3522	57.0	28.5	63	4	1	4	9	86	100.1	14.1	1.57	12.9	0.34	56.9	1
SD3523	60.3	27.4	46	3	0	0	0	100	118.6	14.3	1.66	12.3	0.37	55.5	1
SD3524	60.1	26.6	43	5	0	0	1	99	123.2	13.9	1.63	12.0	0.36	56.2	1
SD3525	59.4	25.4	44	5	0	2	3	95	113.5	13.9	1.61	12.4	0.34	53.8	1
SD3526	59.2	26.1	47	3	0	2	3	95	110.9	13.8	1.59	12.2	0.32	55.5	1

Preliminary Yield Trials - 1998 Crop

Location: Brookings
Nursery: PYT

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash		
RUSS	59.9	29.2	68	4	5	11	21	63	76.9	12.9	1.76	11.9	0.45	56.2	4
OXEN	60.7	28.3	64	4	0	4	16	80	86.9	13.0	1.59	12.0	0.36	55.0	3
SD3463	60.9	29.4	50	5	1	2	13	84	92.2	12.6	1.77	11.6	0.40	50.8	2
SD3467	61.5	31.2	73	2	1	2	14	83	85.1	12.8	1.67	12.0	0.41	56.2	3
SD3469	61.6	30.0	67	3	2	9	19	70	78.1	12.9	1.73	12.0	0.42	56.5	3
SD3470	61.4	29.3	66	4	1	3	17	79	81.1	13.2	1.74	12.4	0.43	57.6	3
SD3471	61.2	29.9	69	4	1	4	15	80	84.0	12.8	1.79	11.9	0.42	55.5	3
SD3472	61.8	30.2	72	3	4	13	21	62	76.0	12.6	1.72	12.0	0.40	55.0	3
SD3475	62.8	29.1	67	4	1	1	6	92	94.4	11.8	1.72	10.6	0.43	53.2	2
SD3476	62.4	31.5	66	2	0	1	6	93	93.0	13.3	1.75	12.2	0.40	55.8	3
SD3477	61.4	28.1	66	4	0	0	5	95	95.9	12.4	1.47	11.4	0.40	54.3	4
SD3478	61.7	31.2	72	3	1	1	7	91	90.5	12.8	1.61	11.8	0.39	56.5	4
SD3479	61.6	29.5	72	3	0	1	10	89	91.2	12.4	1.56	11.5	0.37	55.3	4
SD3480	59.9	30.3	65	4	0	2	7	91	91.0	12.5	1.73	11.4	0.42	53.8	3
SD3493	63.3	30.6	59	3	0	1	10	89	91.9	14.0	1.73	13.1	0.33	59.3	7
SD3496	61.8	29.0	56	4	1	1	11	87	88.3	13.4	1.75	12.5	0.36	55.8	4

USDA/ARS Wheat Quality Laboratory, Fargo, ND

Preliminary Yield Trials - 1998 Crop

Location: Selby
Nursery: PYT

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard		Prot	Ash		Prot	Ash		
RUSS	55.1	26.6	56	6	1	2	5	92	99.7	14.2	1.74	61.5	12.9	0.43	55.8	4
OXEN	56.9	28.8	60	5	0	1	12	87	97.7	14.1	1.62	64.5	12.5	0.33	55.3	4
SD3463	59.1	29.9	66	4	1	5	16	78	87.5	13.7	1.73	59.6	12.2	0.33	51.6	2
SD3467	56.8	28.2	60	4	0	2	7	91	97.4	14.2	1.69	63.3	13.1	0.39	55.0	3
SD3469	56.6	27.1	58	5	1	2	5	92	99.4	14.2	1.71	62.4	13.1	0.42	54.3	3
SD3470	56.6	27.8	61	4	1	2	9	88	97.4	14.6	1.70	63.9	13.4	0.39	55.5	3
SD3471	56.6	27.8	58	5	1	2	9	88	92.7	14.2	1.77	61.5	13.1	0.42	54.3	3
SD3472	57.0	28.2	62	5	1	2	13	84	94.1	13.8	1.88	62.6	12.7	0.40	52.2	2
SD3475	58.6	27.7	58	5	1	1	8	90	99.7	12.7	1.51	59.6	11.7	0.39	51.3	2
SD3476	58.0	27.9	61	4	1	1	3	95	104.5	14.4	1.63	61.1	13.1	0.38	52.6	2
SD3477	59.4	28.8	66	3	1	0	3	96	97.1	14.5	1.60	62.4	13.4	0.35	56.2	3
SD3478	60.2	29.5	73	2	0	0	5	95	102.4	14.7	1.74	61.1	13.4	0.34	55.8	4
SD3479	59.8	29.3	71	3	1	1	4	94	101.9	14.0	1.68	62.0	12.7	0.33	53.8	3
SD3480	57.0	30.7	69	3	1	0	7	92	101.6	13.7	1.56	61.8	12.6	0.35	55.0	4
SD3493	59.8	27.8	35	4	0	1	3	96	106.8	15.0	1.71	58.7	13.2	0.37	55.0	4
SD3496	59.1	27.3	58	4	1	2	11	86	96.9	14.1	1.62	57.9	12.7	0.33	54.3	3

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY1

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash		
CHRIS	60.5	28.1	70	4	1	4	16	79	86.8	14.5	1.92	13.6	0.41	58.6	2
2375	61.8	37.9	84	2	2	8	26	64	71.3	13.8	1.82	12.5	0.40	57.9	3
VERDE	58.8	32.1	79	4	2	7	27	64	71.2	13.9	1.84	12.7	0.38	62.7	2
MN98002	58.9	30.0	65	4	1	2	12	85	82.0	12.9	1.79	11.6	0.40	51.6	2
MN98003	63.0	31.7	86	1	2	6	23	69	70.3	13.3	1.80	12.6	0.42	55.5	2
MN98010	59.7	27.2	47	5	0	1	14	85	89.5	15.3	2.00	15.0	0.41	59.3	4
MN98011	62.9	31.8	72	3	1	4	18	77	80.7	14.8	1.92	13.9	0.39	57.9	3
MN98012	60.6	30.2	63	3	1	4	14	81	81.9	15.3	1.88	14.4	0.39	57.3	4
MN98021	62.0	33.5	84	4	0	2	12	86	79.2	13.3	1.77	11.7	0.41	58.3	3

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY2

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash		
CHRIS	60.6	28.6	70	3	0	4	13	83	81.7	14.1	1.81	13.3	0.40	56.9	3
2375	61.5	34.9	80	2	3	6	20	71	74.5	12.9	1.85	11.7	0.44	54.6	3
VERDE	58.0	31.8	77	4	2	7	22	69	72.4	13.7	1.75	12.8	0.41	62.5	2
MN98025	60.9	31.3	79	2	1	4	14	81	78.0	12.4	1.66	10.8	0.42	56.5	2
MN98027	61.3	35.8	84	4	1	10	28	61	74.2	13.4	1.79	13.1	0.40	56.9	3
MN98029	63.5	29.1	55	4	0	1	8	91	91.4	13.4	1.87	12.2	0.45	57.6	3
MN98030	63.4	31.6	78	2	0	2	11	87	82.6	13.9	1.81	12.4	0.38	56.9	3
MN98037	62.2	33.2	80	2	0	8	24	68	72.7	12.9	1.70	12.1	0.43	56.5	3
MN98039	61.8	29.8	58	4	0	7	24	69	74.8	12.2	1.63	11.1	0.41	55.0	3

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY3

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs		Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash	Abs	Pat	
CHRIS	60.2	29.3	71	4	1	4	14	81	82.7	16.3	1.74	15.5	0.47	60.8	3	3
2375	61.4	35.5	75	4	1	7	26	66	73.9	14.6	1.73	13.0	0.44	57.9	3	3
VERDE	59.1	31.2	77	3	1	5	18	76	74.8	14.1	1.76	13.1	0.36	56.9	2	2
MN98045	60.2	35.6	78	3	1	3	24	72	75.2	13.0	2.02	11.7	0.49	52.2	1	1
MN98048	61.5	32.6	80	3	1	6	27	66	68.1	14.5	1.71	13.8	0.39	55.8	4	4
MN98049	61.8	32.6	78	2	1	1	16	82	78.1	16.1	2.00	15.2	0.40	60.0	3	3
MN98052	61.8	29.4	72	3	2	6	16	76	76.7	13.9	1.80	13.0	0.35	54.3	2	2
MN98057	60.7	31.8	75	3	2	6	27	65	71.4	15.0	1.86	14.0	0.34	61.4	3	3
MN98058	59.4	29.2	65	6	1	8	27	64	66.5	13.9	1.82	13.2	0.39	56.5	3	3
MN98063	63.1	31.1	82	2	1	10	34	55	65.8	14.9	1.71					

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY4

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard		Prot	Ash		Prot	Ash		
CHRIS	60.5	29.0	70	3	1	7	19	66	15.9	1.84	55.1	14.8	0.38	57.6	3
2375	61.0	36.8	77	4	2	5	25	60	14.5	1.83	61.5	13.1	0.41	59.3	3
VERDE	58.9	32.4	78	3	2	6	27	68	14.0	1.76	62.6	12.5	0.44	55.5	1
MN98064	59.9	34.7	91	1	1	3	21	62	15.6	1.96	58.3	15.0	0.48	60.5	4
MN98068	62.8	27.8	64	4	1	3	13	51	15.1	1.86	55.7	14.1	0.35	56.2	1
MN98070	63.0	32.2	77	3	1	2	20	55	15.0	1.84	56.1	14.2	0.45	57.3	3
MN98073	62.8	29.9	75	3	0	2	12	67	15.8	1.84	58.5	14.3	0.40	59.3	4
MN98081	61.0	28.0	49	6	3	2	9	52	13.2	2.58	61.9	12.8	0.53	59.6	1
MN98084	61.5	35.4	77	3	0	3	16	64	12.7	1.90	58.3	11.4	0.44	57.6	1

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY5

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash	Prot	Pat
CHRIS	59.8	28.7	69	4	1	5	14	80	82.7	15.5	1.73	60.7	0.40	60.3	3
2375	62.8	37.0	80	2	1	4	20	75	76.9	14.6	1.78	63.2	0.38	58.2	3
VERDE	59.6	32.1	82	2	1	5	19	75	74.5	13.8	1.62	67.0	0.37	57.9	3
MN98091	62.5	36.1	81	2	1	8	21	70	77.1	15.8	1.83	65.7	0.38	59.0	3
MN98092	62.8	36.6	82	2	0	3	24	73	79.5	15.5	1.77	65.1	0.37	60.0	3
MN98094	62.5	38.1	88	1	1	6	25	68	77.2	14.9	1.81	66.0	0.43	58.6	3
MN98095	63.5	37.0	84	2	1	4	25	70	80.4	14.9	1.75	66.0	0.39	57.9	3
MN98097	63.8	34.0	79	1	2	4	17	77	82.7	15.3	1.87	61.0	0.38	60.5	3
MN98098	62.8	36.4	88	1	1	6	26	67	74.4	14.7	1.87	58.3	0.39	58.2	3

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY6

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash		
CHRIS	60.5	29.8	73	3	0	4	16	80	76.2	15.1	1.77	14.5	0.37	59.0	3
VERDE	60.5	32.3	81	1	0	3	21	76	71.2	13.5	1.72	12.1	0.37	59.0	3
MN98109	60.2	38.1	88	1	0	3	22	75	72.1	14.8	1.83	13.7	0.45	59.0	4
MN98113	63.7	35.9	88	1	1	11	34	54	65.7	13.7	1.62	12.9	0.39	56.2	3
MN98115	62.2	33.8	83	1	1	5	22	72	71.7	15.1	1.66	13.7	0.38	59.0	3
MN98116	60.9	31.0	67	4	1	5	27	67	71.9	14.1	1.84	13.6	0.41	55.3	2
MN98117	61.8	39.1	89	1	1	7	29	63	68.0	15.3	1.88	13.9	0.42	59.3	3
MN98118	61.0	32.6	75	2	0	3	17	80	80.0	14.6	1.75	13.6	0.44	57.9	3
MN98119	61.4	37.0	85	2	5	19	31	45	61.6	14.3	1.65	13.8	0.37	57.9	2
MN98120	60.3	38.4	87	1	3	13	35	49	64.5	14.9	1.81	14.5	0.42	60.3	4
MN98121	62.3	39.5	85	1	1	8	32	59	67.2	13.4	1.62	12.2	0.41	55.4	2
MN98123	63.0	35.9	69	3	1	6	25	68	77.9	14.1	1.81	13.5	0.48	57.9	2
2375	63.4	37.9	83	3	0	6	28	66	70.9	14.2	1.86	12.7	0.35	57.6	4

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY7

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs		Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash	Abs	Abs	
CHRIS	60.4	29.7	73	3	1	5	13	81	84.1	15.1	1.82	14.7	0.38	60.0	60.0	3
2375	63.3	38.0	85	1	0	4	26	70	75.9	14.1	1.74	12.9	0.35	60.3	60.3	3
VERDE	61.0	33.4	85	1	1	5	23	71	72.8	13.2	1.60	12.0	0.37	56.9	56.9	3
MN98130	64.1	31.9	80	2	0	4	14	82	79.8	14.0	1.77	13.1	0.43	58.2	58.2	3
MN98131	63.9	32.6	82	1	0	3	17	80	79.7	14.8	1.75	14.2	0.38	56.5	56.5	3
MN98132	63.4	32.7	80	2	0	3	21	76	79.0	14.0	1.67	13.3	0.39	56.9	56.9	2
MN98134	60.6	32.4	74	4	1	4	17	78	76.9	14.9	1.83	13.6	0.41	56.9	56.9	3
MN98136	62.7	29.7	63	4	1	2	8	89	90.8	14.8	1.74	13.3	0.37	56.5	56.5	3
MN98137	61.6	34.9	73	3	1	2	17	80	78.8	13.9	1.76	12.6	0.39	58.6	58.6	4
MN98140	61.5	40.2	92	1	1	16	34	49	67.4	12.9	1.72	11.9	0.36	56.2	56.2	2
MN98142	58.7	34.5	76	3	6	11	27	56	70.0	15.1	1.85	14.4	0.33	55.3	55.3	1

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY8

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard		Prot	Ash		Prot	Ash		
CHRIS	60.3	29.9	70	3	1	7	16	79.7	15.0	1.73	56.1	14.2	0.40	59.3	4
2375	62.6	36.6	83	3	0	5	24	74.5	13.6	1.79	60.4	12.7	0.37	57.3	4
VERDE	59.4	31.7	78	2	1	2	19	74.9	13.3	1.78	61.7	11.9	0.38	55.8	3
MN98152	61.0	38.2	87	1	2	13	34	65.3	15.4	2.09	57.5	14.1	0.35	57.6	3
MN98154	61.3	31.9	73	3	1	2	10	87	13.1	1.69	55.0	12.0	0.41	55.0	3
MN98156	63.5	33.7	77	1	1	1	9	74.9	13.2	1.66	58.3	11.2	0.38	57.3	3
MN98157	62.6	33.2	81	1	1	10	30	66.3	13.7	1.68	59.3	11.8	0.37	55.8	3
MN98159	64.1	31.3	72	3	1	2	13	79.7	13.9	1.69	59.3	12.4	0.35	60.0	5
MN98161	63.4	32.3	73	2	0	2	13	81.0	13.9	1.73	59.8	12.6	0.38	60.0	5
MN98164	61.8	34.7	94	2	1	7	26	72.5	13.5	1.68	57.1	12.8	0.35	61.4	4
MN98166	58.6	31.2	71	3	1	3	22	75.2	13.8	1.79	60.2	13.3	0.39	59.3	4
MN98167	59.6	37.4	85	2	2	11	27	68.3	12.7	1.71	61.5	14.4	0.42	61.1	4
MN98168	58.8	36.9	81	3	1	2	24	71.7	14.7	1.83	62.5	11.8	0.43	57.6	2

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY9

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash		
CHRIS	61.0	30.6	74	2	0	4	14	82	82.2	15.1	1.77	14.3	0.38	58.2	3
2375	63.9	36.3	85	2	0	4	25	71	79.0	14.5	1.82	12.7	0.36	56.2	2
VERDE	60.7	31.8	81	1	1	3	19	77	79.2	13.5	1.74	12.9	0.34	58.6	2
MN98170	61.8	34.5	81	1	0	8	22	70	79.6	13.9	1.64	12.6	0.36	55.5	2
MN98172	62.1	32.2	74	4	1	9	23	67	76.0	14.6	1.61	12.9	0.35	54.6	2
MN98173	63.0	31.3	74	3	0	5	20	75	74.6	13.8	1.82	12.4	0.36	58.2	3
MN98174	63.1	33.7	78	3	1	5	23	71	72.0	14.3	1.80	12.9	0.35	57.6	3
MN98182	61.9	32.6	81	2	1	4	19	76	73.1	15.6	1.81	14.4	0.34	58.6	3
MN98186	62.2	32.4	75	2	1	4	20	75	69.7	13.8	1.78	11.5	0.36	55.3	2

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY10

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard		Prot	Ash		Prot	Ash		
CHRIS	60.9	29.5	70	3	2	3	13	82	58	14.1	1.66	57.9	14.0	0.37	57.9	3
2375	63.0	37.1	83	1	1	8	20	71	70	14.1	1.84	63.5	12.7	0.37	56.2	2
VERDE	60.3	31.7	82	2	2	4	18	76	59	13.2	1.68	62.0	12.1	0.38	55.5	2
MN98190	63.8	33.2	83	1	1	2	21	76	66	13.8	1.68	60.7	13.7	0.34	60.0	4
MN98197	63.9	34.7	74	2	1	3	14	82	59	13.4	1.75	57.9	12.7	0.35	57.6	4
MN98198	64.6	29.4	47	5	0	3	13	84	72	12.9	1.69	57.5	12.1	0.34	51.3	2
MN98201	64.3	29.4	54	3	0	1	15	84	68	12.9	1.73	58.5	12.2	0.40	57.3	5
MN98204	63.1	27.0	40	6	0	0	10	90	63	13.5	1.77	57.0	12.5	0.40	60.0	5
MN98208	64.1	30.3	68	2	0	4	20	76	70	15.1	1.88	61.7	14.7	0.38	57.6	3
MN98210	64.1	29.4	73	2	0	3	18	79	49	13.5	1.76	58.9	12.4	0.34	57.6	4

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY11

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	
					soft	semi-soft	semi-hard	hard		HI	Prot		Ash	Prot			Ash
CHRIS	63.5	30.3	79	2	0	4	22	74	75.2	78	14.9	1.79	57.4	14.1	0.38	57.9	3
2375	62.6	38.9	85	1	1	10	33	56	65.7	70	14.7	1.75	61.7	12.9	0.36	57.9	3
VERDE	62.0	33.0	85	1	1	6	25	68	68.7	67	13.8	1.66	61.3	13.0	0.33	57.6	3
MN98215	63.4	35.7	80	3	2	7	28	63	69.0	71	14.7	1.79	59.8	13.5	0.46	59.0	4
MN98220	61.1	34.2	81	2	0	2	17	81	77.9	73	14.2	1.73	55.0	12.4	0.41	57.9	2
MN98221	62.2	36.0	87	1	1	5	28	66	69.5	54	13.5	1.84	58.3	13.0	0.37	58.6	3
MN98223	62.6	31.0	68	4	1	3	16	80	77.0	56	13.7	1.80	58.5	12.5	0.39	57.9	3
MN98224	63.7	33.9	79	2	1	3	16	80	74.0	67	14.1	1.65	57.9	12.5	0.38	59.0	3
MN98225	60.0	38.3	83	2	1	13	39	47	63.4	71	14.7	1.73	58.9	13.3	0.40	57.9	3
MN98227	63.1	42.7	91	1	1	9	40	50	67.8	67	13.5	1.67	61.3	11.8	0.37	58.2	3
MN98229	60.9	38.5	82	3	0	9	28	63	71.4	67	13.3	1.76	63.0	12.1	0.39	56.9	3
MN98230	63.5	32.8	81	2	0	6	16	78	76.1	77	12.8	1.68	60.7	10.9	0.39	56.5	3
MN98231	63.8	34.2	75	3	0	2	26	72	71.3	60	12.3	1.70	60.7	10.8	0.42	53.8	4

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY12

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat	
					soft	semi-soft	semi-hard	hard		HI	Prot		Ash	Prot			Ash
CHRIS	61.5	30.5	79	1	0	6	21	73	75.0	73	14.7	1.74	57.9	14.3	0.36	60.3	3
2375	64.1	37.2	83	1	1	7	26	66	69.9	71	14.5	1.65	59.8	12.8	0.33	57.9	3
VERDE	62.8	32.1	86	1	2	10	28	60	69.4	77	13.7	1.62	63.6	12.2	0.43	56.5	2
MN98284	63.5	38.3	87	2	0	3	32	65	71.2	73	13.7	1.74	63.9	12.3	0.45	57.3	3
MN98285	62.1	34.5	77	2	0	3	17	80	84.4	82	13.1	1.54	60.7	11.5	0.41	55.3	2
MN98287	61.5	34.4	75	2	0	5	23	72	73.7	66	12.0	1.59	61.7	10.7	0.44	53.2	3
MN98294	62.5	31.0	77	1	0	1	14	85	82.9	73	14.0	1.67	59.6	12.4	0.40	57.6	4
MN98299	64.9	35.5	88	1	0	3	18	79	73.2	68	13.8	1.92	59.8	12.5	0.39	57.6	4
MN98305	63.1	34.3	88	1	1	8	28	63	71.1	54	13.0	1.51	61.7	11.4	0.34	55.3	2

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY13

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs		Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash	Prot	Ash	
CHRIS	62.2	28.9	73	2	0	2	10	88	86.0	13.7	1.55	12.9	0.38	56.5	56.5	2
2375	64.5	37.5	81	1	0	5	25	70	72.5	14.0	1.58	12.4	0.36	56.9	56.9	3
VERDE	61.7	30.5	81	1	1	3	16	80	75.8	13.5	1.74	11.9	0.38	56.9	56.9	3
MN98307	63.1	34.0	79	2	0	4	20	76	76.8	12.5	1.88	11.6	0.36	53.8	53.8	2
MN98312	65.1	35.2	82	2	1	2	17	80	75.8	12.9	1.55	11.7	0.37	55.0	55.0	3
MN98329	61.4	34.2	84	2	1	6	26	67	70.0	13.1	1.68	12.6	0.33	56.9	56.9	2
MN98331	63.9	32.5	82	1	1	7	23	69	74.8	14.0	1.60	12.4	0.33	58.2	58.2	2

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY14

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard		Prot	Ash		Prot	Ash		
CHRIS	62.7	28.8	73	3	1	2	7	67	13.3	1.55	59.8	11.9	0.43	56.5	3
2375	64.8	36.0	84	1	0	4	20	70	12.7	1.65	60.2	11.0	0.41	56.8	2
VERDE	61.5	32.7	83	1	1	4	17	61	13.2	1.84	63.6	11.4	0.37	57.9	3
MN98339	62.4	37.4	83	1	1	6	27	63	12.8	1.65	62.4	11.1	0.40	59.0	3
MN98344	64.2	34.9	83	1	0	6	23	78	14.0	1.64	65.4	11.9	0.38	62.5	3
MN98347	61.3	33.2	74	3	0	4	15	66	11.7	1.92	55.1	10.5	0.45	54.6	1
MN98354	62.4	33.1	83	1	2	5	19	62	13.6	1.66	63.6	12.1	0.45	58.2	3
MN98355	62.9	33.0	82	2	1	8	26	66	13.8	1.62	63.9	12.0	0.37	59.0	3

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY15

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix	
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash	Abs	Pat
CHRIS	62.7	29.2	74	2	1	3	12	84	87.6	14.3	1.77	12.6	0.38	58.6	3
2375	63.0	35.7	79	2	0	3	23	74	77.5	13.3	1.65	11.8	0.39	56.9	3
VERDE	61.8	32.4	86	1	1	5	17	77	74.9	12.5	1.58	10.9	0.35	56.5	2
MN98365	62.8	33.0	76	3	2	4	15	79	74.5	13.1	1.76	12.3	0.37	57.9	4
MN98366	62.6	30.9	67	2	0	2	11	87	81.6	12.1	1.83	10.5	0.36	54.6	3
MN98367	62.2	31.7	75	3	0	1	10	89	88.3	12.8	1.78	11.0	0.37	55.8	3
MN98368	63.0	31.6	75	3	0	3	10	87	88.5	12.5	1.66	10.9	0.35	56.2	3
MN98369	62.2	38.4	88	1	0	7	34	59	72.3	13.5	1.49	11.7	0.36	58.2	3
MN98374	62.8	33.4	77	2	2	6	27	65	73.0	11.8	1.68	10.3	0.35	53.2	2
MN98375	60.9	30.4	56	5	1	2	17	80	77.7	11.6	1.55	9.9	0.37	51.3	2
MN98376	62.4	33.2	75	3	2	6	23	69	74.5	11.7	1.64	10.0	0.34	52.6	1
MN98378	63.0	35.4	86	2	0	8	24	68	76.3	12.2	1.63	10.7	0.37	55.8	2

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY16

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard		Prot	Ash		Prot	Ash		
CHRIS	60.9	28.1	68	3	1	0	9	63	13.0	1.71	58.6	12.2	0.38	56.5	3
2375	63.0	36.3	84	1	0	4	25	60	13.3	1.87	62.0	11.6	0.37	56.5	3
VERDE	61.2	32.3	83	1	1	5	22	60	13.2	1.60	63.0	11.8	0.35	54.6	2
MN98383	62.8	33.4	70	2	0	6	22	70	12.4	1.67	62.6	10.7	0.37	55.8	4
MN98386	64.0	39.8	88	2	2	13	37	67	12.9	1.57	64.5	11.5	0.35	55.3	4
MN98388	62.6	31.5	71	5	1	5	18	60	12.5	1.58	59.8	10.8	0.34	51.9	2
MN98389	62.2	33.3	72	3	0	5	18	72	13.5	1.65	61.1	11.2	0.46	57.3	3
MN98392	64.7	31.3	74	2	1	4	13	69	12.9	1.75	60.7	11.2	0.36	53.8	3
MN98395	61.8	27.1	44	8	1	2	3	51	12.0	1.68	52.3	10.5	0.43	49.9	1
MN98396	62.6	31.7	72	3	1	3	20	45	11.3	1.72	45.7	10.9	0.37	50.2	1
MN98397	62.5	31.9	74	3	0	2	12	52	15.4	1.96	51.9	14.6	0.39	57.9	4
MN98398	63.6	32.2	72	3	1	5	16	45	13.1	1.75	56.6	12.6	0.35	52.6	2
MN98399	65.3	31.6	69	4	1	1	10	67	13.7	1.64	57.0	12.1	0.39	56.5	3

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY17

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash		
CHRIS	62.4	29.2	72	3	2	3	11	84	81.2	13.6	1.72	12.3	0.40	56.5	3
2375	65.0	37.5	85	1	2	5	26	67	75.0	13.5	1.67	11.9	0.35	55.8	3
VERDE	62.7	32.6	83	1	1	5	19	75	73.2	12.9	1.60	11.5	0.36	56.2	3
MN98411	61.3	36.7	83	2	3	16	37	44	61.7	14.1	1.73	13.2	0.36	59.3	3
MN98414	62.3	33.8	80	2	3	14	29	54	69.9	13.4	1.58	12.5	0.35	52.2	1
MN98420	64.1	32.3	77	2	0	2	17	81	84.6	14.7	1.72	13.6	0.37	61.1	4
MN98421	64.6	33.9	80	1	1	1	11	87	87.7	13.3	1.64	12.0	0.35	60.3	4
MN98422	65.0	32.7	74	2	0	2	10	88	83.7	12.7	1.53	11.4	0.34	58.2	3
MN98426	62.2	29.1	53	4	1	3	11	85	87.2	13.8	1.72	12.9	0.35	60.0	3
MN98430	64.1	33.9	68	3	0	2	15	83	83.5	14.1	1.67	13.0	0.37	57.9	2

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY18

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix	
					soft	semi-soft	semi-hard		Prot	Ash		Prot	Ash	Abs	Pat
CHRIS	59.0	27.6	62	7	1	3	6	67	13.5	2.04	54.7	13.0	0.41	56.5	3
2375	62.3	34.1	71	3	0	3	16	55	12.2	1.75	57.9	11.2	0.38	52.6	2
VERDE	59.6	31.4	81	1	1	2	20	62	12.9	1.74	60.7	11.6	0.37	56.5	3
MN98438	63.0	30.8	58	4	0	3	14	49	13.4	1.59	56.2	12.5	0.36	57.6	3
MN98443	63.4	33.9	76	2	1	1	18	44	12.6	1.79	59.8	11.5	0.40	56.5	2
MN98444	62.6	31.7	60	3	1	2	14	59	13.1	1.79	60.7	12.0	0.38	56.9	3
MN98446	64.2	31.9	67	3	1	4	24	38	12.2	1.67	56.2	11.5	0.38	55.8	2
MN98449	63.2	33.6	79	1	0	1	12	49	13.1	1.79	55.0	11.9	0.41	55.5	3

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY 19

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash		
CHRIS	59.0	29.5	72	2	1	4	12	83	86.4	14.2	1.78	57.4	13.1	0.39	57.9
2375	64.7	35.2	79	1	0	2	16	82	84.6	12.6	1.66	61.7	11.5	0.39	55.0
VERDE	59.8	32.3	82	1	1	4	14	81	82.8	13.2	1.75	61.7	11.7	0.38	57.3
MN98472	64.2	30.0	60	4	3	6	11	80	82.1	12.6	1.64	51.9	11.7	0.40	55.8
MN98473	64.7	34.2	75	2	0	3	16	81	77.4	12.6	1.68	59.3	11.4	0.40	55.0

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY20

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs		Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash	Abs	Pat	
CHRIS	60.7	28.7	72	3	0	2	14	84	82.6	14.4	1.91	13.5	0.38	57.3	3	3
2375	64.3	35.6	80	2	0	5	17	78	77.0	13.4	1.64	12.0	0.36	56.5	3	3
VERDE	60.0	32.1	83	1	1	4	17	78	74.4	13.3	1.65	12.4	0.35	55.8	3	3
MN98484	62.2	33.3	67	3	0	4	16	80	74.4	13.3	1.67	12.1	0.38	58.6	3	3
MN98492	63.6	32.9	75	2	0	2	13	85	81.6	13.6	1.54	13.1	0.37	58.6	4	4
MN98493	62.8	29.0	46	4	0	1	7	92	90.3	13.3	1.72	12.9	0.39	58.6	4	4
MN98501	63.0	37.8	85	1	3	12	36	49	67.1	15.1	1.78	14.9	0.35	61.4	3	3

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY21

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS			NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Prot	Ash		
CHRIS	59.9	29.2	70	5	1	6	20	73	76.6	14.8	1.75	14.4	0.35	59.3	4
2375	62.5	37.6	83	1	1	8	24	67	72.3	13.7	1.77	12.9	0.35	59.6	4
VERDE	59.4	31.7	85	1	2	6	24	68	70.4	13.1	1.64	12.3	0.36	58.6	3
MN98509	62.9	36.2	78	2	3	14	32	51	64.0	14.3	1.62	13.5	0.36	58.2	3
MN98511	62.6	37.3	81	2	3	17	30	50	66.8	14.6	1.64	14.2	0.34	58.2	3
MN98512	63.5	35.1	79	1	2	9	24	65	76.3	14.2	1.59	13.6	0.36	61.1	4
MN98513	62.6	33.3	78	1	1	10	26	63	72.1	14.5	1.70	14.0	0.30	60.3	4
MN98514	63.8	31.9	74	2	1	7	21	71	74.5	14.4	1.57	13.6	0.28	60.3	2
MN98522	62.3	33.9	64	3	1	5	23	71	75.7	14.1	1.70	13.3	0.32	59.3	2
MN98523	62.6	29.0	51	4	0	2	10	88	83.4	13.3	1.59	12.4	0.32	59.0	2
MN98524	62.0	32.2	68	3	1	2	16	81	82.2	13.8	1.58	12.8	0.35	59.3	2

Preliminary Yield Trials - 1998 Crop

Location: Crookston
Nursery: PY22

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				NIR Hard	Wheat (14%)		Flour Ext (%)	Flour (14%)		Mix Abs	Mix Pat
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash		Prot	Ash		
CHRIS	62.4	29.5	72	3	1	2	17	80	85.3	13.6	1.71	58.3	13.0	0.40	56.5	3
2375	62.9	38.1	83	2	0	5	26	69	75.4	12.4	1.70	59.3	11.6	0.37	55.8	3
VERDE	60.8	33.1	82	1	1	4	25	70	70.8	12.6	1.66	61.7	11.6	0.34	56.2	3
MN98539	61.7	30.3	68	3	0	3	15	82	79.8	12.5	1.66	58.1	11.5	0.37	55.5	3
MN98543	61.8	30.6	66	5	1	2	20	77	78.5	11.6	1.62	59.8	10.1	0.40	52.9	3
MN98544	61.6	33.5	78	3	1	7	28	64	72.4	13.3	1.67	59.4	11.9	0.32	55.0	3
MN98550	63.5	33.8	65	2	0	2	18	80	82.2	13.6	1.67	57.0	12.5	0.32	58.6	3
MN98552	63.3	30.7	61	3	1	2	14	83	81.2	14.0	1.87	57.9	13.4	0.37	60.3	4

Section IX

Preliminary Yield Trials

– 1999 Crop

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USDA/ARS Wheat Quality Laboratory, Fargo, ND

Preliminary Yield - 1999 HRS Wheat Crop

Location: Brookings, SD

PPY

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				HI	Wheat (14%)		Flour Ext (%)	Mix	
					soft	semi-soft	semi-hard	hard		Prot	Ash		Abs	Pat
RUSS	61.2	32.6	76	3	1	4	15	80	77.6	13.0	1.86	64.2	60.8	4
OXEN	60.5	31.2	68	4	1	3	17	79	75.0	13.2	1.76	64.2	59.3	4
SD3566	60.2	31.2	64	5	3	19	31	47	60.1	13.5	1.87	60.4	55.3	3
SD3569	61.3	33.9	72	3	0	10	24	66	68.3	13.0	1.85	60.7	56.5	3
SD3570	60.2	28.1	45	6	1	3	17	79	77.4	13.2	1.70	60.6	56.9	2
SD3574	59.7	31.1	57	6	5	13	20	62	69.9	12.9	1.77	59.4	55.8	2
SD3575	60.3	34.3	79	3	1	9	26	64	69.9	13.6	1.80	63.6	56.5	2
SD3576	60.7	33.3	74	3	1	12	27	60	65.9	13.5	1.88	60.6	56.2	3
SD3583	61.5	31.4	66	3	1	2	14	83	84.6	14.7	1.81	na	57.3	2
SD3584	61.4	31.8	77	3	1	5	13	81	87.6	15.1	1.78	na	57.6	2
SD3586	61.3	31.7	78	2	1	4	22	73	80.6	13.5	1.86	60.4	56.9	2
SD3587	61.4	33.7	77	3	2	5	25	68	72.7	13.9	1.89	57.0	55.5	3
SD3588	61.0	30.8	54	4	2	4	11	83	84.8	16.6	1.96	51.9	60.0	3
SD3595	61.8	28.6	49	6	2	4	23	71	74.2	13.2	1.83	56.5	58.2	3
SD3596	61.8	29.6	74	2	0	1	8	91	83.3	13.2	1.87	59.8	57.3	3

USDA/ARS Wheat Quality Laboratory, Fargo, ND

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Preliminary Yield - 1999 HRS Wheat Crop

Location: Groton, SD

PPY

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				Wheat (14%)		Flour		Mix	
					soft	semi-soft	semi-hard	hard	HI	Prot	Ash	Ext (%)	Abs	Mix Pat
RUSS	56.5	26.2	34	4	1	0	6	93	91.4	14.8	1.90	58.9	59.6	4
OXEN	53.1	22.4	4	26	3	4	6	87	81.8	14.6	1.92	58.1	57.3	5
SD3566	54.8	25.2	14	16	7	14	24	55	62.3	14.8	1.79	53.3	58.2	5
SD3569	56.2	25.7	16	15	2	6	13	79	73.8	14.5	1.80	53.7	58.6	5
SD3570	54.5	24.1	7	29	5	4	13	78	78.4	14.6	1.73	52.3	57.6	3
SD3574	53.8	24.7	11	16	3	5	17	75	72.1	14.5	1.86	51.4	58.6	4
SD3575	56.3	25.5	58	10	1	5	9	85	80.8	14.0	1.89	61.3	56.2	4
SD3576	55.4	23.8	16	17	2	3	9	86	75.8	13.8	1.93	56.1	57.9	4
SD3583	59.4	26.9	29	7	1	2	8	89	89.9	14.9	1.86	54.6	58.6	4
SD3584	59.4	27.5	26	9	2	2	5	91	99.8	15.2	1.86	54.6	57.9	3
SD3586	57.0	24.9	24	11	1	4	8	87	88.0	14.3	1.98	51.4	57.3	3
SD3587	56.6	26.3	12	18	3	4	17	76	81.2	14.8	1.97	50.9	55.0	2
SD3588	57.8	24.9	6	14	1	2	5	92	106.6	16.3	2.02	50.9	56.5	2
SD3595	57.4	24.8	18	12	2	4	10	84	86.9	14.3	2.04	55.6	55.0	1
SD3596	55.8	24.9	31	8	1	2	4	93	97.2	15.5	2.16	55.6	55.0	2

Preliminary Yield - 1999 HRS Wheat Crop

Selby, SD
PPY

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				HI	Wheat (14%)		Flour Ext (%)	Mix	
					soft	semi-soft	semi-hard	hard		Prot	Ash		Abs	Mix Pat
RUSS	60.5	31.1	63	4	0	2	14	84	76.4	13.5	1.55	58.9	57.3	3
OXEN	59.4	27.1	42	8	0	3	12	85	76.5	14.0	1.70	41.4	55.3	3
SD3566	59.0	28.9	39	9	3	7	22	68	66.7	13.7	1.48	55.6	54.6	3
SD3569	61.9	33.3	72	2	1	8	27	64	66.4	13.3	1.44	59.3	54.6	3
SD3570	59.9	27.2	34	7	0	2	11	87	80.1	13.5	1.39	57.0	55.8	2
SD3574	59.0	29.0	42	7	1	6	18	75	75.1	13.5	1.56	55.1	55.8	2
SD3575	60.9	31.3	66	3	0	2	20	78	74.3	13.5	1.44	63.0	60.8	4
SD3576	60.2	27.4	47	5	1	3	9	87	78.1	13.7	1.66	58.9	59.0	4
SD3583	62.9	30.5	47	3	2	2	12	84	80.4	14.7	1.44	58.3	59.6	3
SD3584	62.4	30.8	53	4	1	3	7	89	89.6	14.6	1.45	59.3	60.3	4
SD3586	62.2	32.3	73	2	2	6	19	73	78.5	13.9	1.48	56.5	59.0	3
SD3587	61.8	31.8	77	2	1	9	20	70	74.1	13.6	1.41	54.2	57.6	2
SD3588	61.8	30.9	45	3	3	3	13	81	87.2	16.1	1.55	50.9	58.6	2
SD3595	62.7	29.9	55	4	1	5	16	78	74.4	13.3	1.68	44.5	55.5	1
SD3596	62.5	31.4	74	3	1	2	7	90	86.8	13.0	1.52	57.4	56.5	1

USDA/ARS Wheat Quality Laboratory, Fargo, ND

Preliminary Yield - 1999 HRS Wheat Crop

Selby, SD
PYT

Variety	TW (lb/bu)	KWT (gm)	Large (%)	Small (%)	SKCS				HI	Wheat (14%)		Flour Ext (%)	Mix	
					soft	semi-soft	semi-hard	hard		Prot	Ash		Abs	Pat
RUSS	59.5	28.8	56	5	0	2	11	87	81.2	13.4	1.54	55.6	59.0	3
OXEN	59.1	26.5	41	10	2	2	17	79	78.0	13.9	1.67	61.0	61.8	4
SD3532	62.6	30.4	53	5	1	2	17	80	72.8	14.1	1.51	63.6	61.8	5
SD3533	62.6	29.3	60	5	1	2	14	83	82.6	14.1	1.44	60.7	59.3	3
SD3534	62.4	32.1	65	4	1	4	17	78	80.1	13.8	1.44	62.6	59.3	3
SD3535	61.8	27.4	47	7	0	1	4	95	85.2	13.6	1.49	55.6	55.8	3
SD3537	62.4	32.8	74	2	4	13	35	48	62.4	14.0	1.48	60.2	59.0	4
SD3540	60.9	26.4	24	10	0	0	8	92	85.1	14.3	1.51	57.9	58.2	3
SD3541	60.7	29.4	50	6	0	3	15	82	76.0	13.7	1.45	55.1	55.8	4
SD3542	60.1	25.9	22	14	1	5	13	81	76.9	13.7	1.50	51.4	59.6	4
SD3543	60.4	30.3	54	6	1	2	10	87	83.1	14.5	1.54	59.8	59.0	4
SD3544	60.1	28.1	51	9	1	2	15	82	77.4	13.9	1.44	58.1	59.0	4
SD3545	60.5	29.0	51	6	1	1	10	88	81.9	14.8	1.63	57.4	58.2	4
SD3546	62.3	37.5	72	2	2	11	29	58	69.5	14.0	1.44	60.7	62.5	5
SD3549	60.8	29.0	40	8	0	1	9	90	85.8	13.3	1.54	57.5	59.4	5
SD3553	61.3	31.6	67	7	0	9	21	70	70.0	13.7	1.28	56.5	59.6	3
SD3557	62.0	28.9	61	2	2	4	19	75	74.9	14.7	1.31	57.4	58.2	3
SD3561	60.2	27.2	17	5	1	3	5	91	82.3	13.7	1.48	56.6	60.8	5
SD3562	60.9	26.2	17	6	1	1	4	94	90.6	13.8	1.48	56.1	60.0	5

Section X

HRS Wheat Specials – Williston, ND

– 1998 Crop

LOCATION	PAGE #
Arnegard	1
WREC FALLOW	1
Fortuna	1
WREC RECROP	1

Amidon and Penwawa Wheat Specials - Williston, ND - 1998 Crop

LOCATION: ARNEGARD

CULTIVAR	PLOT #	TW (lb/bu)	SIZING		SKCS				WHEAT		Flour		Flour		Mix time (min)	Mix abs	Bake abs (14% mb)	MIX time (min)	Rating Scores				Loaf vol (cc)	Loaf wt (g)				
			LG (%)	SM (%)	Distribution				pro (14% mb)	ash (14% mb)	NIR HI	Flour ext (%)	pro (14% mb)	ash (14% mb)					FN (sec)	Mix time (min)	Mix abs	Mix pat			D	C	C	T
					A	B	C	D																				
Amidon	104	61.9	70	4	0	0	5	95	80.9	10.6	1.46	88.6	72.5	10.3	0.47	362	5.75	52.2	2	61.8	2.75	2	3	3	5	660	140.2	
Penwawa	105	61.7	70	3	87	10	2	1	15.2	8.6	1.38	6.9	68.2	8.4	0.52	347	3.50	49.9	1	54.4	2.75	1	1	1	1	625	135.0	
Amidon	201	61.8	71	4	1	1	3	95	81.7	11.3	1.26	67.7	75.0	11.0	0.42	359	4.75	57.3	2	60.7	2.25	2	5	5	5	770	139.2	
Penwawa	204	61.0	74	3	89	8	1	2	14.2	8.9	1.33	8.3	69.7	8.1	0.49	295	4.00	47.9	1	52.9	2.25	1	3	3	1	625	134.2	
Amidon	303	61.9	73	3	1	1	2	96	86.9	11.2	1.28	75.4	71.5	10.9	0.44	352	4.00	56.2	3	59.3	2.00	2	3	3	5	745	139.9	
Penwawa	305	60.6	70	3	90	7	3	0	11.9	9.5	1.34	7.3	68.2	8.6	0.50	351	4.50	48.2	1	52.2	2.00	1	1	3	1	625	135.4	

LOCATION: WREC FALLOW

CULTIVAR	PLOT #	TW (lb/bu)	SIZING		SKCS				WHEAT		Flour		Flour		Mix time (min)	Mix abs	Bake abs (14% mb)	MIX time (min)	Rating Scores			Loaf vol (cc)	Loaf wt (g)				
			LG (%)	SM (%)	Distribution				pro (14% mb)	ash (mb)	NIR	ext (%)	pro (14% mb)	ash (mb)					FN (sec)	Mix time (min)	Mix pat			D	C	C	
					A	B	C	D																			HI
Amidon	104	54.3	9	21	3	5	14	78	71.2	15.4	1.43	71.0	73.3	14.7	0.44	375	3.75	60.0	3	59.0	2.00	3	5	5	6	960	136.5
Penwawa	105	52.5	8	22	95	5	0	6.7	15.2	1.69	12.2	62.8	12.9	0.55	342	3.75	55.8	2	53.9	2.25	2	4	3	4	805	132.2	
Amidon	201	54.9	11	20	3	4	12	81	72.1	15.7	1.45	70.2	70.3	15.4	0.46	377	3.50	60.3	3	59.6	2.25	3	4	3	5	850	138.1
Penwawa	204	52.6	7	23	96	4	0	0	6.9	14.8	1.60	13.1	68.8	13.4	0.54	341	3.50	57.3	2	54.9	3.00	2	4	3	4	795	133.5
Amidon	303	54.5	10	19	2	5	9	84	71.3	16.0	1.43	74.6	70.8	15.5	0.45	374	3.50	60.3	3	59.3	2.25	3	3	5	6	930	138.2
Penwawa	305	53.8	9	21	97	3	0	0	3.8	14.6	1.52	14.5	66.5	13.4	0.56	334	3.25	55.8	2	54.4	2.75	1	4	3	4	805	132.2

LOCATION: FORTUNA

CULTIVAR	PLOT #	SIZING		SKCS				WHEAT		Flour			Mix		Bake abs (14% mb)	MIX time (min)	Rating Scores				Loaf						
		TW (lb/bu)	LG SM (%)	Distribution				pro (14% mb)	ash (14% mb)	NIR HI	Flour ext (%)	pro (14% mb)	ash (14% mb)	FN (sec)			Mix time (min)	Mix abs	D	C	C	T	vol (cc)	wt (g)			
				A	B	C	D																		HI		
Amidon	104	61.5	84	2	0	1	3	96	82.0	13.5	1.34	86.4	71.8	13.2	0.46	400	3.25	58.6	3	59.0	2.00	3	3	5	6	840	140.3
Penwawa	105	61.0	79	2	90	9	1	0	10.8	10.9	1.57	13.7	67.5	10.3	0.53	370	3.25	52.2	1	51.2	2.25	1	4	1	1	680	136.5
Amidon	201	61.7	81	2	0	0	2	98	83.9	12.7	1.36	85.0	73.8	12.6	0.47	389	3.25	59.0	3	60.5	2.25	3	5	3,4	5	850	139.4
Penwawa	204	61.6	84	2	92	7	1	0	10.7	9.8	1.44	6.2	71.3	9.5	0.53	363	3.00	51.6	1	53.7	2.25	1	4	3	1	675	138.9
Amidon	303	62.4	86	2	0	1	4	95	81.2	11.2	1.33	75.2	75.8	11.0	0.48	376	3.75	57.3	3	59.3	2.00	2	3	5	4	740	136.9
Penwawa	305	61.9	90	1	91	7	2	0	10.2	8.0	1.23	9.5	70.5	7.8	0.50	357	4.00	48.5	1	49.7	2.00	1	1	1	1	555	135.8

LOCATION: WREC RECROP

CULTIVAR	PLOT #	SIZING		SKCS				WHEAT		Flour		Flour		Mix		Bake		Rating Scores				Loaf					
		TW	LG SM	Distribution				pro	ash	ext	pro	ash	FN	time	abs	MIX	D	C	C	T	vol	wt					
		(lb/bu)	(%)	A	B	C	D	HI	(14% mb)	(%)	(14% mb)	(sec)	(min)	(min)	(14% mb)	(min)	pat	C	C	G	T	(cc)	(g)				
Amidon	104	53.0	10	21	1	4	12	83	69.5	15.7	1.61	59.7	68.3	14.9	0.50	355	3.25	60.0	3	52.4	2.25	3	3	5	955	138.6	
Penwawa	105	49.6	6	30	96	3	1	0	3.9	14.4	1.67	5.9	63.3	12.6	0.61	323	3.50	55.5	2	54.8	2.75	2	4	3	4	755	134.3
Amidon	201	52.2	10	23	4	4	9	83	73.0	15.7	1.64	51.4	73.0	15.2	0.55	353	3.25	60.3	3	59.1	2.00	2	4	3	4	845	138.8
Penwawa	204	49.3	6	30	95	4	1	0	7.1	15.2	1.75	1.3	62.5	13.9	0.60	333	3.50	56.2	2	54.4	2.25	1	4	3	4	740	132.6
Amidon	303	51.8	6	26	4	5	10	81	69.4	16.3	1.74	57.4	70.2	15.6	0.56	361	3.00	61.8	4	60.5	2.25	3	4	3	5	925	138.8
Penwawa	305	49.9	7	29	90	6	3	1	10.6	14.7	1.83	7.6	64.3	13.3	0.62	328	3.25	57.6	3	55.3	2.75	1	1	5	4	725	137

DISTRIBUTION: A=% SOFT		CRUMB RATINGS:		Dough Char (DC):		Sticky-weak		pliable		Elastic		Bucky	
B=% SEMI-SOFT				Crumb Color (CC):		Yellow		Grey		Dull		Bright White	
C=% SEMI-HARD				Crumb Grain (CG):		Irreg, Thick		Open, Thick		Coarse		Fine	
D=% HARD				Crumb Texture (CT):		Harsh						Silky	
		0		3		6							

Section XI
Field Plot HRS Wheat Quality Tests
– 1998 Crop

LOCATION

PAGE #

Langdon

1

1998 Field Plots

LANGDON, NORTH DAKOTA

CULTIVAR	TW (lb/bu)	LG (%)	SM (%)	SKCS				Moist (%)	Size (mm)	1000 KWT (g)	WHEAT			Flour			FN (sec)	Mix Time (min)	Mix Abs	Mix Pat	Bake		Crumb Rating			Loaf vol (cc)	
				A	B	C	D				Pro (14% mb)	Ash (14% mb)	NIR HI	Ext (%)	Pro (14% mb)	Ash (14% mb)					abs 14% mb	Mx time (min)	D	C	T		
AC Barrie	61.6	82	2	0	5	27	68	64	10.2	2.81	35.5	15.4	1.63	62.0	74.3	14.9	0.49	400	2.75	61.4	4	60.5	1.75	3	3	6	905
Butte 86	62.7	89	1	0	2	11	87	74	10.2	2.83	35.3	14.0	1.70	69.1	73.5	13.5	0.46	400	2.25	60.0	2	59.6	1.75	2	3	5	755
Grandin	61.6	88	1	0	2	10	88	72	10.3	2.84	35.1	14.3	1.76	73.1	73.2	13.5	0.49	390	3.00	60.3	4	62.5	2.50	3	3	5	890
Keene	63.0	26	2	0	0	10	90	76	10.8	2.72	33.7	14.3	1.41	67.8	72.2	13.4	0.43	362	3.00	59.6	3	62.0	2.25	3	5	5	875
Trenton	61.8	81	2	0	0	7	93	77	10.7	2.82	35.4	14.7	1.55	64.6	74.3	13.8	0.47	356	3.25	60.8	4	61.3	2.25	3	3	6	930
2375	62.6	28	4	1	1	10	88	72	10.3	2.75	35.2	13.3	1.58	60.9	72.2	12.7	0.51	400	2.50	59.3	3	60.7	1.75	2	3	5	825

DISTRIBUTION: A=% SOFT

B=% SEMI-SOFT

C=% SEMI-HARD

D=% HARD

CRUMB RATINGS:

Dough Char (DC):

Crumb Color (CC):

Crumb Grain (CG):

Crumb Texture (CT):

0

Sticky-weak
Yellow

Irreg, Thick

Harsh

3

Pliable

Grey

Open, Thick

Coarse

6

Bucky

Bright White

Fine

Silky

Creamy

Section XII

Methods For Testing Durum Wheat

	PAGE #
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Mill Flow – Small Samples	5
Buhler Mill Flow – Large Samples	6
Durum Wheat Reference Mixograms	7

METHODS FOR TESTING DURUM WHEAT

Test Weight Per Bushel - The weight per Winchester bushel of dockage-free wheat subsequent to passing the sample through a Carter-Day dockage tester.

Thousand Kernel Weight - The 1000-kernel weight was determined from a 10 gm sample of cleaned, handpicked wheat using a Seedburo Seed Counter.

Kernel Size - The percentage of the size of the kernels [large, medium, and small] was determined on a wheat sizer. The sieves of the sizer were clothed as follows:

Top Sieve - Tyler # 7 with 2.92 mm opening

Middle Sieve - Tyler # 9 with 2.24 mm opening

Bottom Sieve - Tyler #12 with 1.65 mm opening

Protein Content - Both the LECO FP-428 Nitrogen Determinator and the near infrared technique were used to determine protein content. Nitrogen values were multiplied by 5.7 to calculate protein values.

Hardness Test - The procedure (AACC Method 39-70A) requires grinding durum wheat samples in an UDY grinder, and obtaining data from a Technicon 450 near infrared analyzer. Wavelengths for hardness were 1680 nm and 2230 nm.

Milling - All samples were cleaned by passing the wheat through a Carter-Day dockage tester. The clean, dry wheat from the larger 2 kg samples was tempered in three stages: 1) 12.5% moisture at least 72 hours prior to the second stage; 2) an increase of 2.0% moisture to a cumulative moisture of 14.5% for 18 hours; and 3) an increase of 3.0% moisture to a cumulative moisture content of 17.5%, 45 minutes prior to milling. The smaller 200-gram samples were pretempered to 12.5% moisture for at least 72 hours. Following, they were tempered to 16.5% moisture and allowed to stand overnight prior to milling.

Small durum samples from the uniform regional nurseries were milled in a Brabender Quadrumat Junior mill equipped with #24GG on the drum sieve. The unpurified semolina was rebolted for 30 sec on a strand sifter equipped with a U.S. #35 Tyler sieve. The throughs of the #35 Tyler sieve were classified as rebolted semolina. The overs of the #35 Tyler sieve were reground and sieved again for 30 seconds. The throughs were combined with the first sieving, and the combined semolina represented the material

tested. The overs of the #35 Tyler sieve were classified as crude shorts, and overs of the rotating #24GG sieve were classified as bran.

Large durum samples from the special and field plot nurseries were milled in a Buhler experimental mill designed for milling durum wheat. The mill is equipped with corrugated rolls throughout, and the semolina is purified in a Miag laboratory purifier. All stock is handled pneumatically. Prior to milling, the Buhler mill and purifiers were adjusted to maximize semolina yield, yet keep the speck count to an acceptable low level.

Semolina Extraction - For both the micro and macro method of milling, the percent semolina extraction was calculated on a total product basis.

Speck Count – The number of specks was determined using the Maztech SPX imaging instrument. Specks were identified by adjusting the gray level settings on the instrument with respect to visual identification of specks. Any materials other than pure endosperm chunks, such as bran particles, were considered specks. Speck count is determined only on the macro-milled durum samples.

Mixograph Analysis - Mixing properties were determined from a constant weight of semolina (10 g) and water (6.0 ml).

Mixogram Pattern - The reference mixograms illustrate different types of mixogram patterns. A single number is assigned each pattern to classify the curves. Larger numbers indicate stronger mixing characteristics.

Semolina and Spaghetti Color Score - The color of semolina and spaghetti was determined using the Minolta CR310 Chroma Meter. In the $L^* a^* b^*$ color system, a high L-value is an indication of the lightness and a high b-value is an indication of the intensity of the yellow pigmentation. L^* refers to lightness and b^* refers to the blue-yellow chromaticity coordinates. The instrument was standardized from color tiles.

MACRO Spaghetti Processing - Spaghetti was processed on a semi-commercial scale pasta extruder (DEMACO). The controls and samples were processed under the following extruding conditions.

Temperature. . . . 49.5°C
Rate. 12 rpm
Absorption. 32.5%
Vacuum. 18 in Hg

Optimum Spaghetti Processing Conditions - Processing spaghetti involved premixing 1000-g batches of semolina in a Hobart C-100-T mixer equipped with a pastry knife agitator. The contents were mixed at a slow speed for approximately 10 seconds while water was added to the semolina. Upon addition of all the water to obtain 32.5% absorption, the contents were blended at high speed for 30 seconds. The mixer was then stopped to scrape down the sides of the bowl, and blending continued for an additional 90 seconds to complete the premix stage. The premixed pasta was then transferred to the vacuum mixer of the press and extruded through an 84-strand 0.043 in teflon spaghetti die. A jacketed extension tube (9-1/4" long x 1-3/4" inside diameter) was attached to the semi-commercial pasta extruder to allow a longer time for hydration of the semolina and minimize the number of white specks (unhydrated semolina) in the spaghetti. Extrusion temperature was controlled by a circulating water bath.

Spaghetti Drying - Spaghetti was dried in an experimental pasta dryer for an 18 hour, computer controlled cycle. During the drying period, the humidity of the dryer was decreased linearly from 95 to 50% R.H. The temperature was held at 40°C for the first 10 hour and was then decreased linearly from 40°C to 30°C during the last 8 hours of the cycle.

Cooking Characteristics of Spaghetti

A. Cooking Procedure

Spaghetti (10 g) that had been broken into lengths of approximately 5 cm was placed into 300 ml of boiling water in a 500 ml beaker. After 12 min of cooking, the samples were washed thoroughly with distilled water in a Buchner funnel, allowed to drain for 2 min, and then weighed (cooked weight). A 12 min cooking time tends to overcook spaghetti. But, better comparisons can be made among durum cultivars with different protein contents in which spaghetti from high protein durum wheat would typically retain better firmness than spaghetti made from low protein wheat.

B. Firmness Score

Strands of cooked spaghetti were placed on a glass plate and sheared at a 90° angle with a special plexiglass cutting device. A TA-XT2 texture analyzer was used to calculate the area under the curve, which represented the amount of work required to shear the cooked spaghetti. Spaghetti firmness represented an average of three separate measurements. Higher

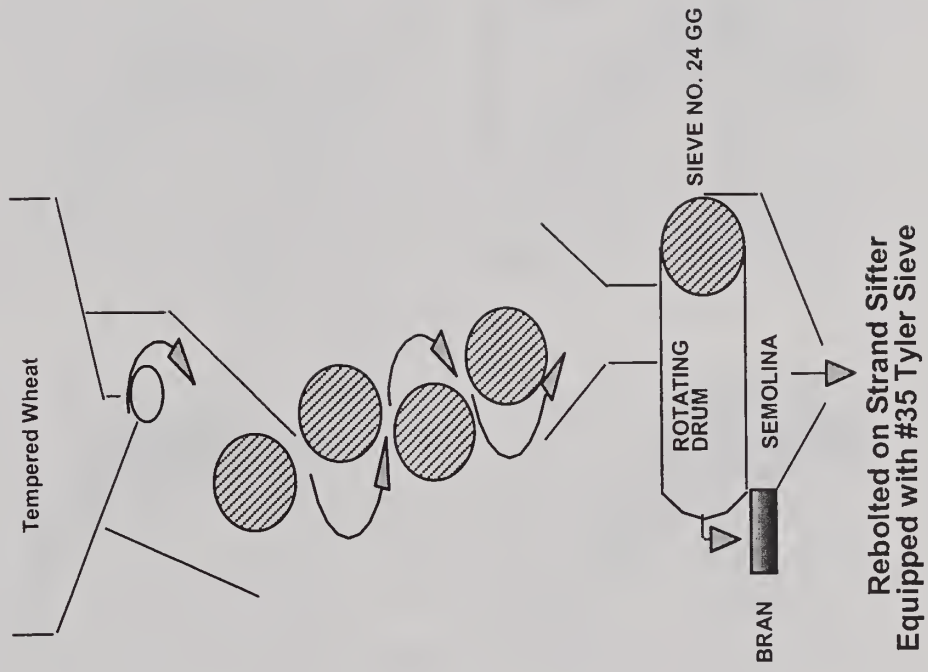
values indicate firmer cooked spaghetti. A firmness value of 6.00 g/cm is preferred.

C. Cooked Weight and Residue

Weight of cooked spaghetti after cooking, rinsing, and draining, and the residue weight (% of dried spaghetti before cooking) remaining after evaporating the cooking water.

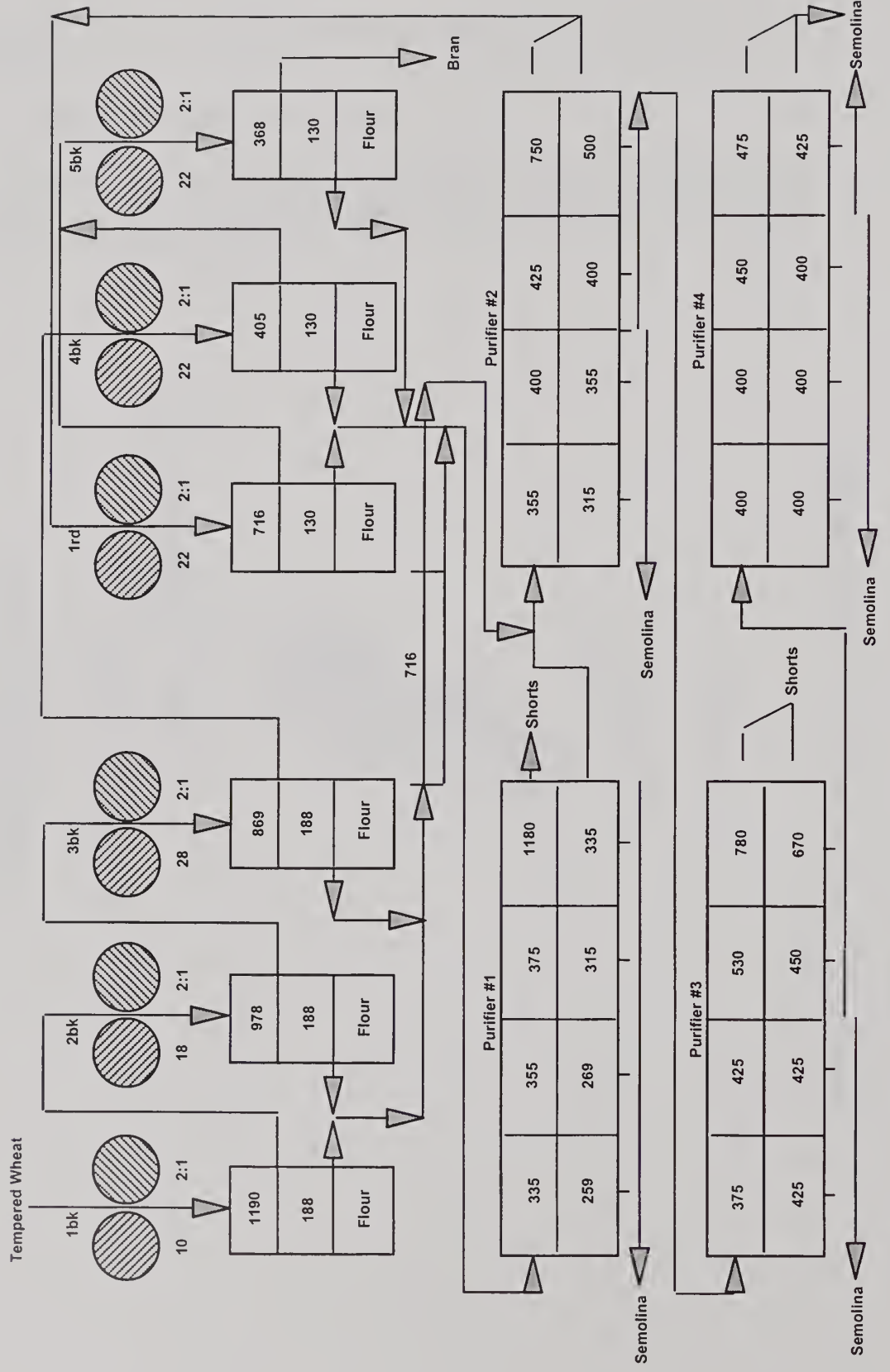
Mill Flow Diagram for Small Durum Wheat Samples

5



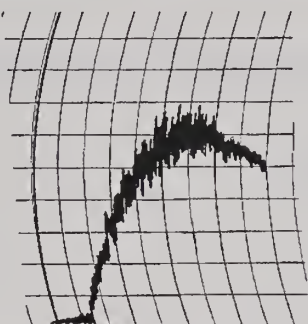
Buhler Mill Flow Diagram for Large Durum Wheat Samples

6

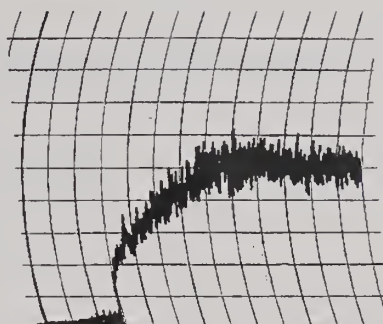




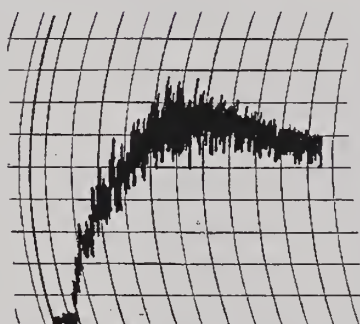
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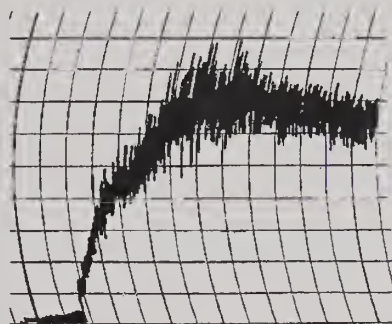
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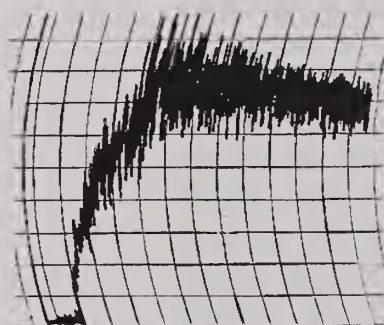
#3



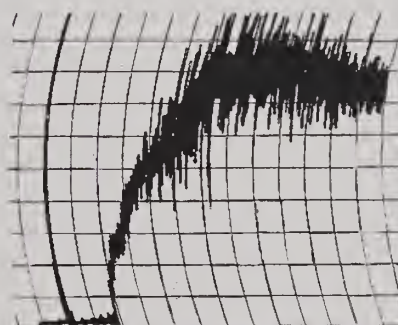
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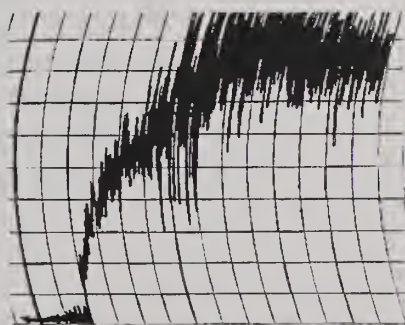
#5



#6



#7



#8

Section XIII

Uniform Regional Durum Nursery

– 1998 Crop

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1998 Uniform Regional Durum Nursery

Bozeman, MT, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	62.0	36.0	46	4	15.3	110	63.9	84.1	24	1
RUGBY	60.6	37.5	60	4	15.2	105	64.2	83.7	27	1
VIC	61.8	42.6	68	2	14.4	107	66.7	84.3	29	2
MEDORA	61.4	41.5	76	2	15.5	106	63.3	84.2	29	2
LLOYD	61.8	42.6	67	4	12.2	99	64.5	84.3	28	2
MONROE	60.9	45.7	85	1	13.9	108	64.8	84.4	28	3
RENVILLE	60.3	35.0	35	6	15.2	111	66.1	84.7	27	3
MUNICH	62.4	41.3	71	2	12.9	107	65.7	84.3	29	2
BEN	62.2	43.3	72	3	14.5	103	66.0	84.1	27	4
BELZER	61.0	41.0	65	2	14.5	107	64.5	84.1	29	5
D89135	63.2	43.7	73	2	13.6	104	65.7	84.6	30	2
D901313	61.8	38.8	61	4	12.7	107	64.8	84.8	26	2
D901442	62.7	43.5	83	1	13.6	100	65.4	84.0	27	2
D91058	62.0	40.5	76	2	13.7	113	64.2	84.6	30	3
D91066	60.4	37.3	62	3	15.1	107	65.4	83.4	30	4
D91080	59.2	34.2	36	10	14.9	104	61.1	83.2	30	3
D901297	63.0	42.6	80	3	13.4	106	66.4	84.3	30	2
D931114	60.6	32.3	24	10	13.7	106	63.9	84.0	29	4
D91-1526	61.4	41.0	66	2	14.8	110	64.5	83.5	31	6
D940027	61.8	37.3	44	8	13.6	111	63.0	84.2	29	4
D940098	63.4	34.0	46	6	13.5	108	63.9	83.7	30	4
D941030	61.4	43.7	76	1	13.5	113	64.5	83.8	29	3
D941033	61.8	44.2	77	2	13.2	114	65.1	83.3	27	2
D941038	63.0	42.6	78	1	13.2	110	65.1	83.8	31	3
D941051	61.6	37.2	45	5	14.7	114	64.8	83.5	29	4
D941229	62.6	51.8	92	0	13.1	108	65.7	84.4	27	4
D941256	61.0	41.2	71	2	14.8	111	63.3	84.3	31	4
D941261	62.9	43.3	76	2	13.7	114	64.8	84.6	30	3
D941276	59.6	35.8	34	7	15.4	107	65.1	84.0	24	3
D941514	61.9	46.5	83	2	13.9	107	65.7	84.4	26	3
D941515	62.2	46.3	85	1	13.2	106	64.2	84.6	26	2
D941518	62.6	43.9	75	3	12.2	102	64.8	84.9	27	3

1998 Uniform Regional Durum Nursery

Bozeman, MT, Rep #2

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	62.0	40.8	65	3	14.5	105	64.5	84.4	23	1
RUGBY	60.9	41.0	66	3	14.7	118	64.5	84.1	27	1
VIC	62.6	44.6	81	3	13.5	109	65.7	84.8	28	2
MEDORA	61.9	42.9	85	1	14.9	113	63.3	84.4	28	2
LLOYD	60.3	40.5	58	3	13.2	102	63.0	84.3	29	3
MONROE	60.5	46.7	58	1	14.8	108	67.0	83.8	27	2
RENVILLE	61.2	39.4	52	4	14.1	111	66.7	84.7	27	2
MUNICH	61.4	40.7	73	2	13.7	111	65.7	84.0	29	2
BEN	62.4	44.4	81	1	14.3	109	63.9	84.4	27	3
BELZER	60.1	43.2	88	1	13.7	108	64.8	83.9	29	4
D89135	59.9	37.0	43	4	15.3	102	63.0	84.0	32	5
D901313	61.6	39.7	65	3	13.5	107	65.4	84.7	26	2
D901442	62.5	45.2	84	1	14.4	115	63.9	84.7	26	2
D91058	60.4	34.5	37	4	15.1	115	61.7	83.6	32	6
D91066	61.4	42.6	74	3	14.8	105	64.2	84.1	31	3
D91080	59.3	36.9	47	5	14.6	110	60.7	83.6	30	3
D901297	61.8	42.7	57	2	14.4	118	64.5	84.8	27	3
D931114	61.0	34.5	43	8	12.6	101	63.9	84.4	28	2
D91-1526	62.2	46.3	57	1	14.2	118	64.5	84.0	29	5
D940027	62.2	42.6	71	2	12.5	99	65.7	84.6	27	3
D940098	63.9	37.7	60	3	12.7	107	64.2	84.2	29	3
D941030	61.0	42.2	69	1	14.1	113	63.0	84.1	29	3
D941033	61.3	36.2	67	2	14.0	114	64.5	84.0	28	3
D941038	62.8	38.2	67	3	13.7	118	61.1	84.4	31	5
D941051	62.4	41.5	66	3	13.8	119	64.8	84.7	28	4
D941229	63.3	49.0	88	1	13.7	116	64.5	84.3	28	3
D941256	62.4	46.3	88	1	13.9	109	65.7	84.4	29	3
D941261	60.9	40.0	60	3	15.2	116	64.8	83.9	31	4
D941276	58.6	35.1	32	5	15.4	109	60.2	84.7	26	4
D941514	62.0	46.3	87	2	14.3	113	63.9	84.7	27	2
D941515	61.9	46.1	83	1	13.9	124	65.4	84.5	27	2
D941518	59.5	39.8	63	2	14.3	110	61.5	84.4	28	4

1998 Uniform Regional Durum Nursery

Carrington, ND, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	60.6	33.9	48	5	14.6	95	64.8	84.0	24	2
RUGBY	61.0	37.7	71	2	15.4	99	66.4	83.4	26	1
VIC	59.9	42.0	74	3	14.9	96	65.7	82.9	26	2
MEDORA	58.9	36.2	68	3	15.3	99	63.9	82.6	28	3
LLOYD	56.2	38.0	63	4	15.3	84	63.6	82.4	27	3
MONROE	58.3	40.3	70	2	14.7	92	65.4	83.0	27	3
RENVILLE	59.8	37.7	56	6	13.7	95	68.5	83.2	25	3
MUNICH	57.6	34.5	59	4	15.0	88	60.2	82.9	29	2
BEN	58.6	41.0	76	5	15.4	95	66.4	82.5	24	3
BELZER	59.0	43.5	84	1	14.7	94	65.1	83.0	27	2
D89135	59.8	38.6	74	2	16.1	91	66.7	82.6	29	4
D901313	58.3	38.2	65	5	15.0	90	64.2	82.6	24	2
D901442	59.7	38.2	64	4	14.7	95	64.8	82.9	26	3
D91058	59.3	38.9	74	3	15.5	100	64.8	82.4	30	4
D91066	59.7	39.2	72	4	15.3	85	65.7	82.7	29	4
D91080	57.1	36.0	59	5	14.5	85	62.6	82.3	27	3
D901297	59.3	41.7	76	2	14.2	104	65.7	83.6	25	3
D931114	59.0	35.0	48	4	13.8	76	65.7	82.2	26	3
D91-1526	59.5	40.5	79	1	15.4	94	65.4	82.3	28	4
D940027	56.2	38.8	65	5	13.7	72	64.5	84.0	26	3
D940098	59.4	36.6	65	4	13.9	88	65.1	82.1	26	3
D941030	58.6	41.0	73	4	15.2	96	64.5	82.7	28	2
D941033	59.5	40.5	72	2	14.3	91	60.6	82.9	27	3
D941038	60.5	37.7	62	2	14.7	101	63.0	82.9	29	5
D941051	57.9	36.1	59	5	14.2	85	66.4	82.8	26	4
D941229	58.6	44.2	84	2	14.7	84	65.4	82.4	26	4
D941256	59.1	41.7	80	1	15.2	90	65.7	82.7	28	4
D941261	59.9	38.2	70	2	16.0	95	65.4	83.0	29	4
D941276	55.9	38.9	56	3	14.4	85	63.8	83.2	23	4
D941514	58.6	45.2	76	3	14.9	88	63.6	83.1	27	4
D941515	56.6	39.8	73	3	14.2	86	63.6	82.2	25	3
D941518	58.7	39.1	61	2	14.5	106	63.0	83.5	27	3

1998 Uniform Regional Durum Nursery

Carrington, ND, Rep #2

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	61.5	36.4	58	4	14.3	85	64.5	84.5	23	1
RUGBY	60.0	38.8	71	4	14.5	93	65.4	82.8	26	1
VIC	59.9	41.2	70	2	14.7	96	65.4	83.2	26	3
MEDORA	59.1	37.0	68	4	14.7	79	63.9	82.6	27	3
LLOYD	54.0	34.8	53	7	15.2	77	61.7	81.7	26	4
MONROE	57.4	40.3	74	3	14.5	89	65.1	82.6	26	4
RENVILLE	59.6	35.0	58	5	14.4	97	66.7	83.2	24	3
MUNICH	57.4	33.0	56	5	14.5	84	63.2	82.8	28	2
BEN	59.8	42.2	75	2	14.9	107	65.1	83.1	24	3
BELZER	55.5	40.8	77	3	14.8	105	63.6	82.2	25	4
D89135	58.5	39.2	76	4	15.8	102	65.7	81.5	27	4
D901313	58.4	38.8	68	4	14.3	98	64.5	82.3	23	2
D901442	60.6	39.4	74	3	14.2	102	61.7	82.8	25	2
D91058	59.8	38.5	77	2	15.6	102	64.8	83.0	28	4
D91066	57.5	34.2	51	3	14.6	88	63.9	82.4	27	3
D91080	na									
D901297	60.2	41.2	80	2	15.0	99	65.4	82.8	24	1
D931114	57.2	42.6	73	4	14.5	97	64.5	82.5	24	2
D91-1526	57.8	41.3	77	3	15.0	88	64.8	82.0	27	4
D940027	59.5	40.2	65	4	13.6	92	64.8	83.3	26	3
D940098	59.3	37.7	63	6	14.0	92	63.6	81.0	26	2
D941030	59.4	43.1	76	2	13.9	99	64.8	82.5	27	1
D941033	58.3	39.4	64	4	14.5	91	64.8	82.3	27	2
D941038	61.3	38.6	69	2	14.3	112	64.2	82.6	29	3
D941051	60.6	40.8	67	3	13.9	102	66.7	83.1	27	3
D941229	56.2	43.7	78	2	14.5	88	64.5	81.6	26	3
D941256	59.4	42.2	77	1	14.9	94	64.8	82.2	27	2
D941261	58.6	40.2	69	4	16.0	102	65.4	81.6	27	2
D941276	56.1	38.5	53	7	14.5	104	63.6	82.4	22	3
D941514	59.1	42.7	77	2	14.9	101	65.4	83.5	26	4
D941515	58.2	42.7	75	4	14.8	96	63.3	82.7	26	3
D941518	58.2	40.8	71	4	14.2	101	64.5	82.4	25	3

1998 Uniform Regional Durum Nursery

Casselton, ND, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	56.6	26.7	27	14	14.1	108	57.4	83.5	22	1
RUGBY	57.8	30.0	50	3	14.4	96	63.2	82.7	27	1
VIC	58.0	26.0	59	6	14.6	101	63.6	83.3	26	4
MEDORA	55.5	28.7	40	8	15.8	107	59.8	82.7	28	5
LLOYD	50.2	25.7	23	16	15.7	99	57.0	81.2	28	5
MONROE	55.4	31.3	53	5	14.7	99	60.2	83.3	29	4
RENVILLE	56.3	27.3	28	15	15.1	111	60.2	82.8	27	4
MUNICH	57.7	29.9	54	5	14.5	94	55.9	84.3	29	2
BEN	58.8	35.2	64	7	14.6	102	63.6	82.2	25	3
BELZER	53.7	34.8	57	8	16.0	106	59.3	82.2	26	6
D89135	55.0	29.8	47	9	15.6	104	61.0	81.8	30	6
D901313	58.1	34.0	55	9	14.6	102	61.1	83.4	24	2
D901442	59.9	37.2	65	5	14.6	113	61.8	83.0	25	2
D91058	57.4	32.6	62	6	14.8	102	63.9	83.0	29	4
D91066	58.5	33.3	60	7	15.4	107	62.0	82.4	29	3
D91080	57.8	31.7	43	10	14.4	91	62.6	82.6	27	3
D901297	57.0	33.2	57	7	15.3	110	62.0	83.1	26	4
D931114	55.3	27.3	27	17	14.2	88	60.4	82.8	26	3
D91-1526	57.8	37.7	73	3	14.7	105	62.0	82.6	28	4
D940027	55.9	31.6	44	15	14.4	97	58.3	83.0	27	4
D940098	57.4	27.8	72	7	14.1	90	59.3	82.3	27	4
D941030	58.4	36.6	60	5	14.7	105	62.0	83.1	28	3
D941033	58.6	34.4	57	7	14.5	98	61.7	82.8	28	3
D941038	60.3	34.5	65	4	14.6	110	59.3	82.4	29	4
D941051	58.0	35.1	57	7	14.3	109	59.8	82.9	26	4
D941229	58.4	40.2	81	2	14.5	99	61.1	83.3	26	4
D941256	53.1	28.9	50	2	15.4	92	58.9	81.6	28	5
D941261	58.6	33.6	57	6	15.7	104	61.1	82.7	29	4
D941276	57.7	37.6	63	6	14.9	111	60.4	83.3	22	3
D941514	58.9	39.7	73	3	14.6	99	62.6	83.4	26	2
D941515	59.0	39.4	76	4	14.9	104	61.7	83.7	24	2
D941518	57.5	34.5	55	7	13.9	95	60.6	83.8	26	3

1998 Uniform Regional Durum Nursery

Casselton, ND, Rep #2

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	57.9	28.1	34	10	14.6	96	60.6	83.3	21	1
RUGBY	56.0	26.9	36	10	14.5	97	60.4	82.5	27	1
VIC	56.0	35.5	40	9	15.0	101	62.3	83.2	28	3
MEDORA	53.8	27.1	26	12	16.2	104	57.4	82.3	29	5
LLOYD	47.8	24.8	16	22	16.4	82	53.7	80.9	27	5
MONROE	56.6	36.1	64	5	14.2	92	62.0	83.4	28	4
RENVILLE	57.9	31.7	45	10	14.7	102	64.8	83.5	25	4
MUNICH	56.1	32.1	40	10	14.8	89	62.6	82.6	29	2
BEN	59.0	41.3	66	7	14.6	88	63.9	83.3	25	3
BELZER	54.3	35.7	64	5	14.6	83	59.3	83.1	27	5
D89135	57.2	33.6	51	8	15.4	95	61.7	82.4	30	5
D901313	58.2	35.0	57	8	14.4	96	58.3	83.4	25	2
D901442	61.0	35.5	65	3	13.2	103	59.6	84.1	26	3
D91058	57.6	33.0	59	4	14.3	89	60.0	82.6	30	4
D91066	58.8	33.2	61	7	15.0	94	61.7	82.7	30	4
D91080	56.5	29.7	38	11	14.1	92	54.7	82.5	28	4
D901297	58.0	35.5	64	5	15.1	102	63.0	83.3	26	4
D931114	54.2	22.6	13	13	14.5	85	58.3	82.5	27	5
D91-1526	55.4	32.7	65	5	15.0	93	58.9	83.0	28	5
D940027	53.8	28.4	35	13	15.0	90	57.0	82.4	27	5
D940098	56.3	26.2	35	14	14.3	94	58.9	82.4	28	5
D941030	56.8	36.0	57	6	14.9	96	61.7	82.8	28	3
D941033	58.0	34.6	54	4	14.2	98	65.4	82.5	27	3
D941038	59.0	33.7	56	7	14.7	106	59.4	83.2	30	5
D941051	59.3	37.5	57	5	13.9	101	60.2	83.2	27	3
D941229	58.5	39.4	75	3	14.9	92	62.0	83.0	27	4
D941256	57.0	35.2	59	6	15.4	99	60.2	82.5	28	4
D941261	57.9	34.0	51	7	15.4	100	62.0	82.3	28	4
D941276	58.0	37.0	61	5	14.3	94	60.4	83.8	23	3
D941514	59.8	38.9	67	4	14.3	105	60.6	83.9	26	3
D941515	60.0	41.7	75	4	14.0	96	62.4	84.1	25	3
D941518	54.0	30.3	44	11	14.8	111	56.5	83.0	27	4

1998 Uniform Regional Durum Nursery

Crookston, MN, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	59.1	40.2	76	3	14.0	96	61.5	84.0	25	4
RUGBY	58.2	35.5	57	4	15.6	102	62.6	82.3	28	7
VIC	55.9	33.0	62	3	14.9	97	62.6	81.8	28	6
MEDORA	55.5	32.5	53	6	13.9	87	61.1	82.4	27	4
LLOYD	55.4	32.3	50	7	14.8	96	60.6	82.6	27	3
MONROE	55.8	31.4	47	7	13.6	94	60.6	82.7	27	3
RENVILLE	54.6	30.5	43	12	14.8	90	58.7	83.2	23	3
MUNICH	56.2	35.5	69	4	14.8	100	61.7	83.0	26	5
BEN	58.6	26.7	26	13	13.3	101	61.1	82.8	27	3
BELZER	53.0	26.2	29	13	14.3	88	59.3	82.5	26	3
D89135	59.0	33.2	56	5	14.8	101	63.9	83.0	30	4
D901313	59.4	34.5	57	5	13.9	91	63.9	83.7	25	2
D901442	51.3	21.6	6	27	15.4	82	52.3	82.4	20	2
D91058	57.4	31.2	55	6	15.5	101	62.6	82.7	29	3
D91066	57.8	31.7	40	9	14.4	103	62.6	83.3	26	3
D91080	59.1	37.0	68	4	14.6	109	63.9	83.9	26	3
D901297	56.8	31.8	46	8	14.2	109	63.0	83.8	24	2
D931114	55.6	29.3	43	8	14.7	97	58.3	82.2	26	1
D91-1526	56.2	37.0	73	3	14.4	92	62.6	83.3	26	4
D940027	57.8	33.7	58	4	13.7	93	63.3	83.7	28	2
D940098	56.7	28.7	27	11	12.9	80	63.0	83.3	25	2
D941030	53.0	30.7	36	11	13.8	92	59.4	82.6	26	3
D941033	60.3	37.7	77	2	14.6	108	63.8	83.3	28	3
D941038	58.6	32.5	53	5	15.0	106	62.2	82.8	28	3
D941051	59.4	39.2	75	3	14.1	108	61.1	83.7	26	3
D941229	55.6	29.1	48	11	15.7	105	58.9	83.0	27	4
D941256	58.0	29.2	34	12	14.7	100	58.5	83.0	29	4
D941261	51.6	25.4	25	18	14.3	85	59.8	82.8	27	3
D941276	58.6	37.2	62	6	13.5	100	63.0	84.0	25	3
D941514	58.9	36.1	60	4	13.9	92	63.6	83.1	26	3
D941515	56.7	35.5	65	3	14.5	97	62.0	82.4	27	4
D941518	60.5	40.2	72	3	14.0	104	62.4	84.0	24	3

1998 Uniform Regional Durum Nursery

Crookston, MN, Rep #2

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	56.9	35.2	57	5	14.5	102	62.6	83.1	28	3
RUGBY	59.5	38.8	59	5	13.7	98	62.6	84.3	23	2
VIC	57.4	32.4	49	6	15.0	101	62.0	82.7	29	4
MEDORA	55.5	30.3	39	10	14.9	99	58.9	82.5	25	1
LLOYD	59.1	40.7	77	2	14.1	105	66.4	83.5	25	3
MONROE	60.6	38.3	68	3	13.9	103	66.4	83.9	25	2
RENVILLE	55.3	30.4	29	14	14.0	96	63.0	82.6	27	3
MUNICH	53.7	28.2	15	25	14.0	82	64.5	81.8	27	2
BEN	58.2	35.0	63	4	14.4	93	66.4	82.6	28	2
BELZER	60.9	41.5	74	2	14.0	104	66.1	83.8	23	2
D89135	57.6	36.5	72	2	14.3	94	63.6	82.8	28	3
D901313	61.7	39.8	74	2	14.0	103	66.7	83.6	25	2
D901442	57.3	37.0	54	6	13.7	103	65.1	83.2	26	5
D91058	52.4	28.7	35	9	14.7	86	59.6	81.6	28	6
D91066	56.5	29.8	42	8	14.0	90	64.8	83.0	28	2
D91080	56.9	34.7	56	7	14.6	91	65.7	83.2	25	1
D901297	57.0	34.6	58	6	15.1	99	65.7	82.6	28	3
D931114	56.0	35.5	54	6	13.8	92	63.0	83.3	25	2
D91-1526	55.1	31.6	47	7	14.3	93	61.7	82.6	27	2
D940027	53.5	23.9	15	20	13.4	76	60.2	82.4	26	2
D940098	50.3	28.5	27	16	13.4	78	58.9	82.4	26	2
D941030	56.4	35.0	53	10	14.3	97	61.1	82.8	20	1
D941033	57.8	41.2	80	2	14.1	93	63.9	83.2	26	3
D941038	56.6	33.7	67	4	14.3	99	63.0	82.6	28	3
D941051	57.0	32.7	42	3	15.3	108	60.2	82.3	27	3
D941229	56.5	39.1	78	2	14.4	101	62.0	82.9	26	4
D941256	58.6	41.8	73	3	14.0	98	63.0	83.5	26	2
D941261	56.3	32.6	38	10	14.5	101	64.2	83.0	25	3
D941276	58.6	37.0	64	4	16.1	109	63.0	82.4	28	4
D941514	55.5	24.5	17	20	13.6	92	59.8	82.0	27	3
D941515	56.1	27.2	27	12	15.4	98	59.3	81.9	29	5
D941518	53.4	29.5	40	10	16.1	95	59.3	81.7	27	5

1998 Uniform Regional Durum Nursery

Day County, SD, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	58.2	31.8	49	7	15.8	140	62.4	79.4	21	2
RUGBY	59.0	35.2	63	4	14.9	132	64.2	80.7	26	1
VIC	56.6	34.2	61	5	16.3	138	62.4	78.8	26	3
MEDORA	57.6	33.9	62	5	15.7	136	61.5	80.8	27	4
LLOYD	50.6	29.5	36	11	16.7	127	58.7	78.3	27	4
MONROE	56.8	38.2	71	2	14.9	131	65.7	80.2	26	4
RENVILLE	58.2	34.0	49	7	15.6	138	64.2	81.2	25	4
MUNICH	56.4	33.4	52	6	15.6	139	63.0	80.5	27	4
BEN	58.7	38.2	76	3	15.6	134	63.3	81.4	24	4
BELZER	56.3	38.3	73	3	16.2	139	63.0	79.9	26	5
D89135	57.6	35.7	66	4	16.2	126	63.3	78.9	28	4
D901313	57.2	37.3	56	6	15.9	145	64.5	78.3	24	3
D901442	59.8	34.6	70	4	15.0	134	63.9	80.5	26	4
D91058	56.6	35.8	64	4	16.4	135	63.9	79.8	29	4
D91066	57.6	31.3	68	4	16.0	134	63.9	80.3	27	4
D91080	56.2	36.2	43	8	14.9	127	62.6	79.6	27	3
D901297	57.6	30.8	65	4	16.5	134	62.4	79.8	25	4
D931114	57.6	39.1	33	11	13.9	133	63.3	79.3	25	3
D91-1526	59.0	36.2	75	3	15.2	124	63.3	80.1	27	4
D940027	58.0	29.3	58	5	14.2	127	62.0	80.6	26	4
D940098	58.2	30.5	44	2	14.7	121	60.7	79.6	26	5
D941030	57.8	39.4	68	3	15.5	132	63.0	80.3	27	3
D941033	58.3	37.7	65	4	14.8	131	63.3	80.7	27	3
D941038	59.9	33.9	39	5	15.2	140	63.6	79.5	28	5
D941051	58.2	36.9	58	4	14.8	132	64.2	79.6	26	4
D941229	58.5	42.9	38	5	15.6	133	63.0	79.1	26	5
D941256	56.5	35.6	68	4	16.1	127	62.6	79.7	27	4
D941261	58.6	35.5	68	3	16.5	136	64.8	79.5	27	4
D941276	57.5	39.1	67	5	15.0	133	62.4	80.5	22	3
D941514	58.3	41.0	82	2	15.4	131	65.1	79.5	24	3
D941515	58.4	40.5	79	3	15.2	127	63.9	79.2	25	4
D941518	57.7	35.6	63	4	14.6	132	64.5	80.5	25	4

1998 Uniform Regional Durum Nursery

Dickinson, ND, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	56.6	27.2	7	17	18.7	105	59.3	83.5	25	3
RUGBY	57.3	29.2	8	13	17.7	110	61.5	83.6	32	5
VIC	56.3	28.3	8	15	17.7	95	59.3	83.6	32	5
MEDORA	59.2	33.2	37	6	16.7	98	62.0	83.7	32	4
LLOYD	53.6	28.4	7	20	17.6	105	58.9	83.1	31	7
MONROE	58.5	34.4	41	5	16.1	115	62.6	83.7	31	6
RENVILLE	54.3	24.4	1	27	18.9	111	61.7	83.6	29	4
MUNICH	52.5	22.1	3	25	18.8	122	58.3	82.1	33	4
BEN	58.3	31.7	7	3	16.9	109	64.5	83.6	29	5
BELZER	54.2	27.8	6	12	18.1	98	58.3	82.6	30	7
D89135	55.0	26.8	6	18	18.8	111	60.2	82.9	34	8
D901313	54.7	25.8	4	20	17.9	98	59.3	83.2	30	4
D901442	57.0	28.1	13	14	18.1	102	59.8	83.3	30	5
D91058	57.2	27.5	22	8	17.1	95	61.7	82.8	33	6
D91066	55.7	25.3	8	18	18.6	94	60.2	82.6	34	7
D91080	56.7	28.4	6	14	17.1	108	58.3	82.9	32	6
D901297	55.3	27.7	8	14	18.3	111	60.7	83.7	31	7
D931114	56.7	24.8	3	27	16.4	111	56.9	82.9	31	7
D91-1526	59.8	30.7	30	6	16.4	117	63.2	83.4	33	7
D940027	54.7	25.2	6	21	18.2	115	58.9	83.3	32	7
D940098	58.7	24.0	6	14	17.8	116	60.2	82.7	33	8
D941030	55.7	27.2	8	16	18.3	114	59.4	82.4	33	7
D941033	55.5	27.6	4	11	18.0	114	57.8	82.8	31	7
D941038	56.7	24.9	5	19	18.3	115	56.5	82.9	34	8
D941051	55.3	26.0	6	18	18.1	118	59.8	83.2	31	7
D941229	57.3	31.2	41	8	17.4	109	61.1	83.8	31	8
D941256	55.3	26.7	14	14	18.6	120	62.3	82.7	33	8
D941261	56.5	28.0	7	16	18.3	119	60.6	83.5	33	8
D941276	53.4	27.0	7	18	19.1	116	58.3	83.3	27	8
D941514	57.3	31.7	33	9	17.1	120	63.6	83.5	31	7
D941515	56.7	28.8	22	9	17.8	118	59.6	83.7	31	7
D941518	53.1	24.0	9	22	18.2	103	59.4	82.8	31	7

1998 Uniform Regional Durum Nursery

Dickinson, ND, Rep #2

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	58.0	26.1	8	15	16.9	112	60.2	84.0	25	2
RUGBY	57.7	28.2	15	13	16.7	114	58.3	82.9	30	1
VIC	57.4	28.7	17	13	16.3	108	61.7	83.5	31	1
MEDORA	57.0	29.4	18	11	17.9	113	60.7	83.4	32	6
LLOYD	52.7	27.0	6	20	18.0	120	58.3	82.6	32	7
MONROE	57.3	31.4	9	5	15.8	110	63.6	83.5	31	5
RENVILLE	54.8	25.3	1	22	18.4	120	60.2	84.1	30	7
MUNICH	54.2	25.1	5	18	18.1	118	59.8	82.3	33	4
BEN	56.5	29.5	11	10	18.6	113	62.3	83.5	29	7
BELZER	55.1	30.7	27	9	17.8	118	61.3	83.7	30	7
D89135	56.4	28.4	11	14	17.6	109	62.0	83.8	34	7
D901313	53.8	25.0	3	23	18.5	119	59.4	83.0	30	4
D901442	58.0	28.5	18	10	17.1	112	60.7	83.3	30	6
D91058	54.6	26.2	15	13	18.7	119	59.3	82.4	33	8
D91066	55.7	25.8	11	16	18.2	113	59.3	83.0	34	7
D91080	54.6	27.3	13	17	18.3	114	59.3	82.8	32	7
D901297	55.9	28.0	10	11	18.4	115	60.6	83.4	30	8
D931114	55.8	23.9	3	24	16.8	100	61.3	82.8	30	7
D91-1526	57.8	29.4	21	8	17.1	113	59.3	82.8	33	7
D940027	55.5	26.4	5	17	17.4	108	59.4	83.6	30	7
D940098	60.5	27.1	15	16	15.8	114	61.7	83.2	32	6
D941030	54.4	27.5	8	18	18.0	108	56.5	82.5	33	7
D941033	54.7	26.5	10	17	17.5	114	58.9	82.7	32	7
D941038	55.7	25.6	5	19	18.2	130	58.3	82.8	33	8
D941051	56.8	27.5	7	16	17.6	126	61.5	82.9	31	7
D941229	56.5	29.9	23	7	18.0	116	59.8	83.0	31	8
D941256	58.2	30.2	7	7	16.3	115	60.7	83.5	33	8
D941261	55.4	26.6	5	18	19.0	117	62.3	81.8	33	6
D941276	55.0	28.4	10	14	17.2	115	59.8	83.3	27	6
D941514	56.5	30.6	28	9	17.4	114	60.2	83.2	31	6
D941515	58.2	33.3	39	6	16.7	116	61.7	83.3	30	6
D941518	54.8	25.4	6	16	17.6	131	57.4	83.4	31	6

1998 Uniform Regional Durum Nursery

Langdon, ND, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	62.2	40.8	74	3	14.5	120	64.8	84.3	22	1
RUGBY	61.2	41.2	76	3	14.6	128	64.8	83.7	27	1
VIC	59.8	38.6	79	3	14.8	124	66.7	84.3	28	4
MEDORA	60.6	38.8	73	4	15.2	124	62.4	84.1	28	4
LLOYD	57.0	35.6	58	7	14.0	107	60.7	83.3	28	4
MONROE	61.3	46.1	81	4	14.1	116	65.1	84.2	28	4
RENVILLE	60.9	40.7	73	4	14.4	119	66.7	84.5	25	3
MUNICH	61.0	40.3	75	3	14.1	112	65.7	84.3	29	3
BEN	62.6	46.9	86	2	14.7	117	65.4	84.5	26	4
BELZER	60.5	45.5	85	2	14.3	120	66.4	84.2	28	5
D89135	61.2	39.5	78	2	14.8	125	64.8	83.8	30	4
D901313	60.9	40.7	76	4	13.8	121	65.4	84.4	24	2
D901442	63.4	44.6	85	2	14.1	120	66.4	84.6	26	3
D91058	62.2	46.1	87	1	14.1	110	67.3	83.9	29	4
D91066	60.8	44.8	80	3	14.5	121	64.5	84.2	29	4
D91080	61.6	41.3	70	4	13.2	123	65.4	83.3	29	3
D901297	62.2	45.5	85	2	15.0	130	68.8	83.9	25	4
D931114	61.8	35.8	51	9	12.9	114	66.4	83.6	27	3
D91-1526	61.0	46.7	89	2	15.0	122	67.6	83.7	29	5
D940027	61.4	43.9	77	4	13.1	119	67.6	84.3	26	3
D940098	62.0	39.7	74	4	14.0	126	65.7	83.7	27	3
D941030	61.6	46.1	85	2	14.5	117	66.7	84.3	28	4
D941033	62.0	41.7	74	3	13.7	116	66.4	84.1	26	4
D941038	63.5	42.2	81	2	13.8	126	68.9	84.6	30	5
D941051	61.6	46.3	82	2	14.4	115	67.6	84.1	27	4
D941229	60.6	51.5	86	1	14.1	120	66.7	84.0	27	4
D941256	61.8	48.5	87	1	14.9	117	66.7	83.8	27	4
D941261	61.6	43.9	82	2	15.8	127	66.7	84.0	30	4
D941276	61.7	43.1	77	3	13.8	122	65.7	84.7	23	3
D941514	61.8	50.5	90	2	15.3	133	66.4	84.2	27	3
D941515	61.6	47.4	88	2	14.9	117	65.4	84.4	26	3
D941518	61.8	41.3	77	2	13.1	132	65.1	84.5	27	4

1998 Uniform Regional Durum Nursery

Langdon, ND, Rep #2

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	61.6	37.6	67	4	14.8	119	64.2	83.8	22	2
RUGBY	61.8	39.8	47	3	14.7	126	65.7	83.7	26	1
VIC	62.7	45.2	86	1	15.0	125	67.6	84.0	27	4
MEDORA	61.0	40.7	77	3	14.8	124	65.7	83.4	29	4
LLOYD	58.7	38.5	66	5	13.9	114	64.5	83.4	27	3
MONROE	60.5	40.5	76	4	14.4	124	67.0	83.4	28	4
RENVILLE	61.8	39.2	74	4	14.9	121	67.6	84.1	25	3
MUNICH	62.6	41.2	78	2	14.1	118	67.6	84.2	29	2
BEN	63.5	45.2	87	2	14.5	131	66.7	84.3	26	3
BELZER	61.3	50.3	89	0	14.6	126	66.7	84.0	29	5
D89135	61.8	40.5	85	2	15.6	129	65.7	83.1	30	5
D901313	60.8	40.3	68	5	14.4	117	66.4	84.1	25	3
D901442	63.0	44.6	82	2	14.6	125	67.3	83.4	26	4
D91058	62.6	44.4	87	1	15.1	126	67.3	83.8	29	4
D91066	61.9	44.1	84	2	14.6	121	67.3	83.2	30	4
D91080	61.0	37.2	66	4	13.2	121	66.4	84.1	29	3
D901297	61.7	45.7	85	2	14.8	123	66.7	83.4	26	4
D931114	62.9	37.2	51	7	12.6	112	66.4	83.8	27	3
D91-1526	62.2	46.9	91	1	14.8	128	66.4	83.8	29	4
D940027	63.2	42.7	79	2	13.1	122	66.7	84.6	26	3
D940098	62.0	35.0	67	5	13.6	124	63.9	83.1	28	4
D941030	61.4	44.2	83	2	14.9	128	66.4	83.7	28	3
D941033	61.7	43.5	79	2	13.9	123	66.7	84.1	27	3
D941038	63.1	41.5	79	2	14.0	120	65.7	83.5	30	5
D941051	62.8	45.7	83	2	14.2	123	66.7	83.8	27	4
D941229	62.0	54.3	96	0	14.5	124	67.3	84.0	26	4
D941256	61.9	45.5	86	1	15.2	133	65.1	84.0	28	4
D941261	61.6	44.6	81	2	16.0	140	65.7	83.4	29	5
D941276	61.5	42.7	78	2	13.8	125	66.7	84.8	23	3
D941514	61.6	50.8	89	1	15.9	135	64.8	83.2	26	5
D941515	62.1	49.3	86	2	14.9	129	65.4	83.3	26	4
D941518	60.9	38.3	61	2	13.4	118	63.6	84.3	27	5

1998 Uniform Regional Durum Nursery

Minot, ND, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	61.6	36.5	65	4	14.0	112	64.2	83.5	22	1
RUGBY	57.0	32.6	33	9	17.1	128	62.0	82.7	28	1
VIC	57.4	39.2	61	4	15.8	110	66.7	82.5	27	3
MEDORA	57.3	36.5	68	3	16.2	112	62.0	83.5	28	4
LLOYD	54.7	37.7	55	4	15.3	94	62.6	83.3	28	5
MONROE	57.0	36.8	78	2	14.2	83	66.4	85.0	20	5
RENVILLE	58.3	34.7	54	4	15.4	109	65.4	83.5	24	4
MUNICH	55.9	31.6	39	7	16.4	110	64.2	82.5	28	4
BEN	58.2	40.3	72	3	16.1	116	64.5	83.2	26	5
BELZER	57.8	39.8	77	1	15.0	99	63.9	83.9	28	5
D89135	58.2	38.9	67	3	16.1	109	64.5	82.8	30	6
D901313	56.6	35.7	57	4	15.2	99	63.6	83.6	25	4
D901442	58.5	38.2	72	3	15.6	108	64.5	83.8	26	4
D91058	58.0	40.5	80	3	13.8	92	65.7	84.2	23	4
D91066	58.7	37.9	72	3	16.1	106	64.5	82.7	30	4
D91080	57.5	37.3	65	4	14.7	97	62.6	83.5	28	5
D901297	58.0	34.2	48	6	15.8	102	66.7	83.9	28	6
D931114	58.6	33.2	57	5	14.5	87	64.5	84.0	25	5
D91-1526	57.2	36.8	73	3	15.6	101	63.9	83.1	29	6
D940027	57.6	36.5	79	2	13.8	85	64.8	84.4	22	4
D940098	58.7	33.8	59	4	14.1	91	63.9	83.8	27	5
D941030	57.3	39.1	68	3	15.8	106	62.6	82.7	28	4
D941033	57.4	39.4	69	3	15.7	105	64.4	83.3	27	4
D941038	58.4	34.8	61	3	14.7	105	61.7	84.2	28	6
D941051	57.5	36.6	57	3	14.5	102	63.9	83.5	27	4
D941229	56.7	40.5	54	4	15.0	102	64.2	84.0	27	5
D941256	55.9	40.0	72	3	15.9	97	61.5	82.9	28	5
D941261	58.3	37.2	64	3	16.0	101	65.1	83.6	28	7
D941276	57.2	41.2	65	5	14.8	102	64.5	84.3	22	4
D941514	58.4	41.3	79	3	14.8	102	63.9	84.4	23	5
D941515	58.6	40.8	76	3	15.5	105	63.6	83.8	26	5
D941518	56.5	33.7	54	3	15.5	103	62.0	83.7	28	5

1998 Uniform Regional Durum Nursery

Minot, ND, Rep #2

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	59.7	30.8	49	6	15.8	102	61.1	84.1	24	2
RUGBY	59.1	35.7	52	6	15.3	109	63.9	83.6	27	2
VIC	58.5	40.8	74	2	15.5	109	64.8	83.4	28	4
MEDORA	58.1	33.9	69	2	14.6	97	63.6	84.3	23	5
LLOYD	57.3	36.8	69	2	13.1	75	63.9	84.9	22	3
MONROE	55.1	39.4	72	3	15.7	105	63.9	82.8	26	5
RENVILLE	58.4	36.8	62	3	14.9	121	64.8	84.0	26	3
MUNICH	57.9	38.5	73	2	14.1	94	64.5	83.7	25	3
BEN	58.5	37.3	77	2	14.4	82	64.5	85.1	20	5
BELZER	57.8	38.8	78	2	14.6	88	64.5	84.2	24	6
D89135	58.7	39.1	57	1	14.8	99	66.7	83.0	29	6
D901313	58.2	38.8	76	1	14.7	98	66.7	83.8	22	3
D901442	59.0	37.3	76	2	14.6	93	65.4	84.4	22	3
D91058	57.4	38.3	73	2	16.0	104	65.7	82.2	29	4
D91066	58.4	39.1	74	3	16.1	112	65.4	83.1	29	3
D91080	58.3	38.0	74	3	14.9	102	65.4	83.5	26	3
D901297	57.9	40.0	75	2	15.5	102	68.6	83.3	27	4
D931114	58.3	32.8	50	5	14.6	95	64.5	82.9	26	3
D91-1526	58.2	38.9	79	2	15.3	103	65.7	82.3	28	6
D940027	58.3	39.1	70	3	14.2	97	66.4	83.8	27	5
D940098	60.3	35.5	63	2	14.0	103	65.4	83.1	28	3
D941030	58.4	38.6	76	1	14.9	92	63.9	83.9	25	4
D941033	58.0	38.3	70	2	15.3	97	64.5	83.8	25	5
D941038	60.1	39.8	77	1	14.8	109	65.1	83.6	29	5
D941051	58.4	37.6	70	4	14.0	100	66.0	83.3	26	4
D941229	58.6	40.0	81	1	14.1	80	66.4	85.6	19	6
D941256	56.7	40.2	80	2	15.6	95	65.1	82.9	28	4
D941261	57.8	36.6	56	5	15.9	108	64.5	83.6	29	5
D941276	58.0	35.5	69	5	14.5	98	64.2	84.5	21	4
D941514	58.6	41.8	77	2	15.7	108	63.9	83.8	26	5
D941515	58.0	41.2	76	3	15.2	108	62.0	83.4	26	4
D941518	57.2	36.2	63	4	14.2	92	63.0	84.4	27	4

1998 Uniform Regional Durum Nursery

Morris, MN, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	62.8	44.8	85	1	13.6	108	66.1	84.3	26	1
RUGBY	62.0	40.7	72	4	12.6	106	66.7	83.5	28	2
VIC	60.3	35.0	59	5	13.6	92	64.2	83.6	22	1
MEDORA	58.2	37.0	53	9	14.3	99	62.6	80.7	26	2
LLOYD	60.7	42.9	70	3	13.8	99	64.5	83.5	28	2
MONROE	60.9	38.6	70	1	13.9	99	66.1	83.0	30	2
RENVILLE	61.0	39.4	72	3	13.2	92	65.1	83.4	28	2
MUNICH	61.3	40.3	69	3	13.3	107	66.1	83.7	25	1
BEN	60.6	36.4	67	3	13.6	99	65.4	82.8	29	1
BELZER	59.8	39.4	77	2	14.6	102	63.9	82.8	29	3
D89135	61.5	41.5	77	3	13.8	104	65.1	84.3	25	3
D901313	62.2	39.5	69	3	13.7	105	65.1	83.7	27	2
D901442	59.9	40.0	70	3	13.6	103	64.2	82.7	29	2
D91058	54.6	27.4	23	16	15.2	94	61.7	81.6	30	2
D91066	59.0	38.8	67	4	14.3	107	63.0	83.3	29	3
D91080	58.1	29.0	29	13	14.6	102	60.2	82.3	28	3
D901297	58.0	34.7	56	4	15.1	107	61.5	83.2	27	2
D931114	59.0	32.5	53	6	14.8	112	60.2	82.5	28	1
D91-1526	61.9	39.1	69	3	13.7	96	63.3	83.5	28	2
D940027	53.1	21.9	11	25	15.1	82	56.2	81.6	29	4
D940098	48.7	38.5	19	19	16.1	69	58.6	80.6	26	4
D941030	58.2	30.5	47	7	14.7	91	61.1	82.4	30	3
D941033	57.7	35.2	76	2	14.7	95	61.1	82.7	28	3
D941038	56.4	41.0	47	7	15.4	97	61.1	82.5	30	3
D941051	60.7	34.6	50	6	13.6	99	65.1	83.7	27	1
D941229	59.7	37.7	78	2	13.4	88	64.2	83.2	27	4
D941256	61.4	37.9	57	5	13.5	102	62.6	83.2	31	5
D941261	61.4	34.7	68	4	13.7	86	65.4	83.2	29	2
D941276	59.8	35.7	64	5	13.5	95	64.2	83.8	23	2
D941514	59.1	34.5	56	6	14.0	95	63.0	83.0	29	3
D941515	59.2	35.7	64	4	14.8	94	61.5	82.8	29	4
D941518	60.1	35.7	56	4	15.5	96	63.3	82.8	30	4

1998 Uniform Regional Durum Nursery

Morris, MN, Rep #2

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	56.6	34.8	66	4	14.9	90	63.0	82.3	28	5
RUGBY	59.9	33.4	44	7	13.7	95	63.9	82.5	29	3
VIC	57.8	35.0	58	5	15.5	97	63.0	83.0	27	2
MEDORA	58.4	29.8	38	10	14.5	92	61.1	83.4	23	1
LLOYD	56.9	33.1	48	6	15.2	96	62.4	82.1	30	2
MONROE	58.3	34.1	64	4	14.9	85	63.9	81.8	29	3
RENVILLE	59.8	35.0	62	4	14.8	95	64.8	83.1	27	3
MUNICH	60.6	34.6	59	3	15.7	99	64.5	83.2	29	3
BEN	61.8	37.0	72	3	14.0	101	64.8	83.7	27	2
BELZER	58.6	31.2	38	7	15.1	98	62.4	82.5	29	2
D89135	55.5	24.0	15	19	15.3	88	58.5	81.7	28	3
D901313	57.2	33.0	50	8	15.4	86	61.7	83.0	28	3
D901442	57.8	32.1	49	7	15.5	95	63.0	83.1	27	3
D91058	55.8	27.8	28	9	16.0	97	61.1	81.9	29	4
D91066	58.2	31.1	35	8	15.1	98	63.9	83.2	27	2
D91080	60.1	36.8	66	3	14.5	97	63.9	84.1	23	3
D901297	56.9	25.1	22	15	15.0	96	58.3	82.2	28	3
D931114	59.4	35.8	62	6	14.5	89	63.6	83.0	28	1
D91-1526	59.5	33.6	57	4	14.1	91	63.9	82.7	29	1
D940027	60.2	38.0	73	2	14.5	95	63.3	83.0	28	3
D940098	61.9	34.6	61	2	13.1	99	63.3	83.0	29	3
D941030	58.6	37.7	75	2	14.1	96	62.0	82.7	27	3
D941033	60.4	34.6	70	3	13.5	98	64.2	83.8	29	2
D941038	60.9	37.6	66	4	13.5	100	63.0	83.8	27	2
D941051	59.5	33.0	53	6	13.3	96	64.2	84.3	25	2
D941229	51.8	28.7	30	12	15.5	91	57.0	82.5	28	4
D941256	59.1	32.1	44	12	14.4	98	61.8	81.8	31	3
D941261	56.7	28.6	34	11	14.1	93	60.6	81.8	28	4
D941276	60.9	38.0	72	4	13.1	102	63.9	83.8	27	3
D941514	60.1	34.5	63	3	13.8	99	63.3	82.7	30	2
D941515	58.5	29.3	44	8	14.3	105	62.0	82.6	28	1
D941518	56.6	30.2	51	6	14.8	101	60.2	81.8	29	4

1998 Uniform Regional Durum Nursery

Selby, SD, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	62.8	34.6	58	4	13.0	124	65.7	81.8	21	1
RUGBY	59.4	35.7	65	5	13.7	125	63.0	81.0	26	1
VIC	59.1	36.5	68	4	14.0	122	64.8	81.5	27	3
MEDORA	59.3	36.6	62	3	13.7	125	63.9	80.5	27	3
LLOYD	52.9	31.0	64	10	15.0	119	59.8	80.0	27	4
MONROE	56.6	38.8	68	3	13.3	116	66.4	79.2	25	3
RENVILLE	59.5	33.6	47	4	13.5	126	66.4	81.4	25	2
MUNICH	58.0	34.6	53	6	13.8	126	63.3	80.1	28	2
BEN	61.0	41.5	79	2	13.9	126	63.3	81.3	25	3
BELZER	56.1	36.9	64	5	13.5	118	63.2	80.2	27	4
D89135	59.1	35.1	61	4	14.5	124	65.7	80.0	28	4
D901313	59.2	35.6	51	6	13.3	129	65.1	80.0	24	2
D901442	60.2	35.1	66	4	13.5	119	64.8	80.0	26	2
D91058	59.5	35.7	69	3	14.0	137	64.2	80.6	29	3
D91066	60.0	36.2	68	4	13.7	125	65.4	80.0	29	3
D91080	58.4	35.0	53	5	13.2	115	62.4	81.3	28	3
D901297	58.2	36.6	66	5	14.5	121	63.9	81.2	27	3
D931114	59.6	32.7	39	10	12.6	109	63.9	81.0	24	3
D91-1526	59.0	36.8	72	3	13.9	114	63.3	81.5	28	3
D940027	58.7	35.0	54	7	12.7	113	62.0	81.7	26	3
D940098	60.1	31.7	45	9	13.6	127	61.7	81.3	27	4
D941030	59.6	39.8	72	2	14.0	131	63.3	80.4	27	3
D941033	58.8	35.5	57	5	13.7	129	63.0	81.1	27	4
D941038	60.9	34.7	56	5	13.6	129	63.6	79.9	28	5
D941051	59.5	36.5	62	5	12.9	121	65.4	81.3	26	4
D941229	59.8	41.3	83	2	13.9	123	63.6	80.9	26	5
D941256	58.8	37.5	71	3	14.3	118	62.4	79.2	28	4
D941261	60.2	36.0	65	4	14.7	130	63.9	81.0	29	5
D941276	59.2	40.8	57	5	14.2	129	64.2	80.4	25	3
D941514	59.2	38.9	67	2	13.2	133	63.0	81.5	22	3
D941515	59.9	40.3	73	3	13.6	126	63.9	81.6	26	4
D941518	58.2	37.3	60	5	12.9	120	63.9	81.7	26	2

1998 Uniform Regional Durum Nursery

Sidney, MT, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	65.0	45.0	83	1	11.3	109	62.3	84.0	21	1
RUGBY	62.4	43.1	80	3	13.3	121	65.4	82.1	26	1
VIC	61.3	46.5	81	2	12.6	112	64.8	82.2	28	3
MEDORA	62.0	42.6	78	2	12.8	117	63.3	82.1	28	3
LLOYD	59.1	43.5	69	4	13.1	106	63.0	80.9	29	3
MONROE	60.7	45.2	84	1	12.6	116	63.9	81.8	28	3
RENVILLE	62.0	42.4	68	3	12.8	114	66.1	83.5	27	2
MUNICH	61.3	41.2	72	2	12.7	113	64.8	82.6	30	2
BEN	62.2	47.8	89	1	12.8	118	64.2	82.0	26	3
BELZER	60.0	45.2	80	1	13.4	117	64.2	81.7	28	3
D89135	61.3	44.6	79	2	13.7	124	65.4	81.6	31	4
D901313	62.2	44.6	81	1	13.1	132	64.8	82.5	25	2
D901442	62.3	46.1	80	2	12.5	127	64.2	82.2	27	3
D91058	61.8	43.1	79	1	13.4	120	64.8	81.0	31	3
D91066	61.0	44.4	79	2	13.6	125	64.5	82.6	30	3
D91080	62.3	43.1	78	2	12.9	124	65.7	82.3	29	4
D901297	61.8	46.1	87	1	13.1	109	65.4	82.8	28	4
D931114	61.6	35.2	53	7	12.9	125	65.4	80.9	28	4
D91-1526	57.3	43.1	85	1	13.6	125	65.4	82.1	30	6
D940027	61.8	47.6	85	1	12.4	113	65.7	81.5	26	4
D940098	63.4	40.5	77	2	11.2	99	63.9	82.2	27	3
D941030	61.3	45.5	78	1	12.5	117	65.4	81.6	29	4
D941033	61.1	43.1	75	1	12.1	99	64.8	82.0	28	4
D941038	62.2	41.5	71	3	12.8	111	63.0	81.7	30	5
D941051	61.8	43.9	77	2	13.2	121	64.5	81.2	27	4
D941229	61.5	52.1	93	0	12.1	108	63.0	81.3	27	4
D941256	61.0	48.1	86	1	13.0	113	63.0	81.1	30	4
D941261	61.9	45.0	79	2	12.5	120	63.9	81.4	30	5
D941276	61.7	47.6	77	3	12.7	122	63.3	82.5	24	3
D941514	62.2	48.3	84	1	12.2	119	63.0	81.6	27	4
D941515	62.2	45.8	80	1	13.4	125	63.3	82.0	27	4
D941518	60.0	42.0	70	2	12.6	116	62.0	82.2	28	4

1998 Uniform Regional Durum Nursery

Sidney, MT, Rep #2

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	62.6	39.2	68	3	12.7	114	63.3	82.5	24	1
RUGBY	56.8	43.1	78	2	13.6	119	63.9	81.9	27	1
VIC	62.0	46.7	87	1	13.4	125	65.7	81.2	27	4
MEDORA	61.2	42.6	73	2	14.0	125	62.4	81.3	28	4
LLOYD	57.9	40.0	71	5	13.8	114	60.2	81.7	29	5
MONROE	59.9	46.1	84	1	13.5	117	64.8	82.3	28	5
RENVILLE	61.0	40.0	61	4	13.7	120	65.7	82.2	26	3
MUNICH	60.6	40.0	69	2	13.2	118	64.8	80.5	29	3
BEN	62.2	45.5	82	3	14.2	123	64.2	82.5	26	4
BELZER	60.5	47.1	85	1	12.4	116	64.8	81.7	28	4
D89135	61.3	45.8	79	1	13.9	124	65.1	81.3	30	5
D901313	61.0	40.2	68	3	13.6	117	63.3	81.3	25	3
D901442	62.4	44.4	83	1	13.0	122	65.1	81.5	27	3
D91058	60.9	41.8	73	2	13.7	110	64.2	80.8	30	4
D91066	62.5	44.1	85	1	12.6	120	64.2	81.8	30	3
D91080	62.0	45.8	82	1	13.5	132	63.9	82.0	28	4
D901297	60.3	44.4	79	2	13.3	114	65.4	82.4	27	4
D931114	62.4	40.5	80	4	12.5	120	64.2	82.0	28	3
D91-1526	62.5	48.3	92	0	12.7	111	64.8	82.2	29	4
D940027	60.5	43.5	73	3	13.0	111	64.2	82.3	27	6
D940098	62.7	42.4	80	2	12.9	117	63.0	82.2	28	4
D941030	61.1	45.8	85	1	13.1	120	64.8	81.2	29	4
D941033	61.2	43.1	74	3	12.7	108	63.9	81.6	28	4
D941038	61.8	39.5	70	4	13.4	123	63.0	81.9	30	4
D941051	61.5	44.1	77	3	13.2	121	64.2	82.4	28	5
D941229	62.0	51.5	92	0	12.6	112	63.3	82.4	27	3
D941256	60.7	42.9	80	1	13.7	116	63.0	82.5	29	4
D941261	63.0	46.7	84	1	13.4	119	64.8	82.5	30	4
D941276	62.4	46.3	78	2	11.7	94	63.6	82.8	24	3
D941514	62.1	49.5	85	1	13.3	117	63.9	81.9	27	3
D941515	61.5	46.9	83	1	12.9	119	63.0	82.2	26	3
D941518	59.1	38.3	65	3	13.4	123	63.6	80.7	28	3

1998 Uniform Regional Durum Nursery

Sidney, MT, Rep #3

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	62.8	34.1	50	3	12.7	113	64.2	83.6	23	1
RUGBY	61.0	37.5	60	3	14.1	111	63.0	82.2	28	1
VIC	61.7	40.2	76	1	13.1	106	62.6	83.0	29	2
MEDORA	61.3	37.5	61	2	13.8	111	62.6	83.0	29	3
LLOYD	60.0	37.0	54	4	12.8	95	61.1	82.3	29	3
MONROE	60.5	42.6	83	1	14.5	106	61.9	81.8	28	3
RENVILLE	61.4	34.8	37	4	12.9	106	65.7	82.0	27	4
MUNICH	60.1	33.0	44	4	13.6	108	63.6	82.1	30	3
BEN	61.8	39.5	76	1	13.6	109	63.9	83.2	26	4
BELZER	59.5	36.2	63	2	13.0	103	63.9	81.7	28	4
D89135	62.4	37.5	59	2	13.9	115	64.8	82.5	32	4
D901313	61.1	36.1	45	3	13.1	116	66.4	82.2	27	2
D901442	62.6	38.3	59	2	13.0	105	63.3	82.5	28	3
D91058	60.6	35.7	57	3	14.4	108	63.3	80.8	31	4
D91066	62.0	36.9	66	1	13.9	102	63.6	81.7	32	4
D91080	61.4	35.2	47	4	13.1	113	62.4	81.8	29	3
D901297	61.2	38.3	70	2	13.7	100	63.3	83.2	28	3
D931114	62.6	32.7	36	5	12.2	100	64.8	82.7	27	3
D91-1526	62.1	39.5	76	1	13.2	106	61.8	80.8	30	3
D940027	62.6	39.5	67	3	11.9	108	64.2	81.7	28	3
D940098	63.8	33.9	45	4	12.3	110	61.1	81.7	29	3
D941030	61.0	39.2	62	3	13.3	102	64.0	81.1	30	3
D941033	60.9	45.0	67	3	12.6	116	63.9	81.7	29	3
D941038	62.4	37.3	50	3	13.2	105	62.0	82.7	31	3
D941051	61.1	35.1	59	2	13.2	108	63.3	81.4	29	4
D941229	62.8	36.5	87	1	13.4	103	62.4	81.0	28	4
D941256	60.6	40.5	73	1	13.0	105	62.0	81.6	30	3
D941261	61.4	37.0	54	3	14.1	104	64.5	82.0	31	4
D941276	60.2	36.4	30	5	12.7	101	61.5	82.8	24	4
D941514	62.0	40.8	72	2	13.6	101	61.1	81.5	27	4
D941515	62.0	40.5	68	3	14.1	131	62.6	82.1	27	4
D941518	60.0	35.5	45	5	12.4	118	61.7	82.6	28	3

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Sidney, MT, Rep #4

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	60.6	31.5	21	6	16.2	132	63.6	80.5	23	2
RUGBY	60.8	36.4	67	3	14.1	138	63.9	81.1	27	1
VIC	60.7	37.2	55	4	14.9	127	65.4	81.7	29	3
MEDORA	59.4	33.7	48	5	16.9	136	64.5	81.0	29	4
LLOYD	57.8	32.6	21	8	15.7	120	61.7	81.8	30	5
MONROE	59.9	40.5	73	6	14.8	125	63.9	81.7	27	3
RENVILLE	58.8	31.3	19	7	15.8	133	65.4	81.1	27	5
MUNICH	58.0	29.4	21	7	16.6	132	62.0	82.0	31	4
BEN	60.3	36.1	52	5	16.5	135	63.9	81.8	27	5
BELZER	57.9	35.2	51	5	15.8	126	63.6	81.1	28	6
D89135	61.0	36.2	54	7	15.2	128	65.4	80.5	30	4
D901313	59.4	34.0	26	5	14.9	138	63.9	81.5	27	4
D901442	60.6	34.5	51	3	14.6	129	65.7	80.8	27	3
D91058	60.6	37.0	62	3	14.1	140	66.7	81.1	31	3
D91066	59.4	32.4	44	5	16.6	122	65.7	79.6	30	4
D91080	59.4	31.4	35	6	15.1	127	63.3	80.5	29	4
D901297	61.0	36.9	60	2	15.2	127	67.9	81.6	27	4
D931114	61.1	31.9	21	9	14.4	126	65.1	80.6	27	4
D91-1526	61.8	39.5	76	1	14.1	135	64.8	80.8	28	3
D940027	59.7	33.9	32	7	15.1	122	63.3	81.2	28	5
D940098	62.4	30.8	57	10	15.3	133	63.0	80.4	30	5
D941030	60.3	38.0	60	3	14.7	130	64.8	81.6	29	3
D941033	62.5	39.1	59	2	13.6	130	66.7	81.5	28	3
D941038	60.3	32.1	31	7	15.8	131	64.5	81.2	30	5
D941051	59.5	33.6	36	7	15.5	133	65.7	81.9	28	5
D941229	60.2	42.0	73	3	15.7	125	64.8	80.7	29	4
D941256	60.5	36.9	67	2	15.0	130	62.4	81.9	31	2
D941261	60.7	35.0	45	1	15.6	138	64.8	82.2	31	4
D941276	59.8	35.5	28	6	14.6	140	62.3	82.4	25	4
D941514	61.6	41.5	73	1	13.8	128	62.4	82.7	27	4
D941515	60.6	38.8	67	2	15.4	132	61.5	83.5	27	3
D941518	58.9	31.2	30	5	14.2	127	62.0	81.5	29	3

1998 Uniform Regional Durum Nursery

Swift Current, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	61.4	35.6	47	3	12.7	125	65.1	83.3	23	2
RUGBY	60.6	38.6	57	3	12.2	130	65.7	80.7	26	1
VIC	60.9	39.8	66	2	11.8	114	68.2	81.9	29	2
MEDORA	61.4	39.7	75	1	12.0	122	65.7	82.6	29	2
LLOYD	59.9	40.5	78	1	10.7	113	65.1	82.4	28	2
MONROE	59.8	36.2	80	2	12.8	122	66.1	81.6	28	2
RENVILLE	60.3	33.7	45	2	11.5	120	68.8	82.0	27	1
MUNICH	59.3	41.7	44	4	11.7	112	66.4	82.0	30	2
BEN	61.1	41.0	57	1	11.6	117	66.7	83.0	27	2
BELZER	59.5	40.8	72	1	11.0	110	65.1	82.3	30	3
D89135	60.6	38.0	59	2	11.9	126	66.1	82.6	32	3
D901313	60.1	35.7	46	4	11.7	126	65.4	83.3	27	1
D901442	60.7	36.4	66	2	11.1	118	67.9	83.2	27	2
D91058	59.6	35.5	62	4	11.8	123	65.7	81.8	32	3
D91066	60.8	36.5	58	3	11.8	121	64.5	82.5	32	3
D91080	59.7	35.7	50	3	11.4	115	63.9	82.7	30	3
D901297	61.8	39.2	67	2	11.7	123	67.6	83.2	28	2
D931114	62.2	32.9	30	7	10.8	126	65.4	82.7	28	3
D91-1526	61.8	39.5	76	1	11.7	122	67.3	81.0	31	3
D940027	61.8	39.2	57	3	10.5	109	66.1	83.1	28	2
D940098	63.8	35.1	49	2	11.1	122	66.4	83.4	30	3
D941030	60.1	39.7	61	1	11.8	129	64.8	82.3	30	2
D941033	60.6	37.6	54	4	10.6	112	65.7	82.8	29	2
D941038	60.6	34.5	60	2	12.2	128	64.2	82.3	32	3
D941051	61.5	37.7	56	5	11.6	132	66.7	82.5	30	3
D941229	61.8	47.1	88	1	11.3	118	68.2	82.0	28	2
D941256	61.4	39.7	79	1	11.2	117	65.1	82.8	31	2
D941261	61.8	38.6	61	2	11.4	117	65.1	83.4	32	2
D941276	59.8	37.0	40	2	11.5	123	63.6	83.1	25	2
D941514	62.0	43.9	79	2	11.7	117	66.1	83.6	29	2
D941515	61.8	43.3	73	1	12.4	119	65.7	82.7	28	2
D941518	59.9	35.5	51	4	10.9	105	63.9	81.9	29	2

1998 Uniform Regional Durum Nursery

Swift Current, Rep #2

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	61.3	34.4	32	4	12.9	123	64.2	83.1	24	2
RUGBY	60.9	39.1	65	3	11.8	113	66.4	82.0	28	1
VIC	62.4	42.6	72	4	11.1	111	67.0	82.8	29	1
MEDORA	62.0	39.5	73	2	11.8	120	66.1	81.2	29	1
LLOYD	60.9	45.5	60	3	11.1	105	65.1	81.1	29	3
MONROE	61.1	34.1	83	1	11.5	119	68.2	82.0	27	2
RENVILLE	60.2	34.5	72	3	12.1	113	67.0	82.5	29	3
MUNICH	60.2	34.2	46	5	11.3	107	65.1	82.5	31	2
BEN	61.7	43.3	74	1	11.6	120	66.1	82.5	28	2
BELZER	60.6	39.5	74	2	10.6	108	65.7	81.7	28	3
D89135	62.1	38.3	67	2	11.2	114	67.3	82.3	31	2
D901313	60.3	35.7	42	4	11.2	121	64.8	82.5	27	2
D901442	61.7	37.0	82	2	11.0	118	66.7	81.7	28	2
D91058	62.6	36.2	67	2	11.8	113	65.1	82.0	32	3
D91066	60.6	35.7	58	3	12.3	109	65.1	81.1	32	3
D91080	60.9	36.2	53	4	11.0	107	65.7	81.8	30	3
D901297	61.4	40.7	72	2	11.3	117	66.1	82.4	28	2
D931114	62.6	33.4	40	6	10.7	102	66.7	82.2	28	2
D91-1526	62.7	39.8	76	2	10.8	110	68.6	81.7	30	3
D940027	61.8	38.6	53	3	10.8	107	66.7	82.4	27	3
D940098	63.5	34.2	57	4	10.6	110	66.7	82.4	28	3
D941030	59.6	37.3	52	8	12.0	120	64.8	81.3	30	2
D941033	59.9	35.1	48	3	11.9	112	64.8	82.2	30	3
D941038	62.2	35.0	52	4	11.8	120	66.0	81.4	30	3
D941051	62.0	37.5	58	4	11.4	118	66.1	82.3	29	3
D941229	61.6	47.4	88	0	11.8	110	66.1	81.5	28	3
D941256	61.3	41.2	77	1	11.4	107	65.1	81.8	30	2
D941261	61.6	37.7	58	2	11.7	111	66.7	81.8	31	2
D941276	60.2	37.6	41	5	11.1	105	63.3	83.2	24	2
D941514	61.8	41.8	78	3	11.9	117	65.7	82.2	29	3
D941515	61.8	42.4	71	1	11.8	124	64.8	82.8	28	3
D941518	59.5	33.9	52	2	11.3	118	63.0	82.7	28	3

1998 Uniform Regional Durum Nursery

Williston, ND, Rep #1

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	56.8	26.7	13	15	18.4	121	52.3	83.9	24	3
RUGBY	56.1	27.4	18	12	18.1	114	51.4	83.2	29	2
VIC	57.0	32.2	22	9	17.1	117	53.7	84.0	31	6
MEDORA	55.6	29.5	30	7	18.1	119	50.0	83.8	30	5
LLOYD	52.9	28.1	11	18	18.3	114	50.5	83.0	31	8
MONROE	56.6	33.4	45	6	17.1	117	54.2	84.0	30	7
RENVILLE	56.2	28.1	8	18	17.8	123	57.9	83.9	28	6
MUNICH	54.5	26.1	11	14	18.1	112	50.9	82.9	31	6
BEN	59.0	33.8	43	6	16.9	109	58.3	84.2	28	7
BELZER	55.4	31.0	28	10	17.5	111	56.6	83.2	30	8
D89135	56.6	28.6	16	12	18.0	111	57.1	83.0	33	7
D901313	55.9	28.3	9	16	17.6	118	51.4	83.7	29	6
D901442	58.2	28.8	8	11	17.5	116	57.0	83.2	29	6
D91058	56.6	30.7	33	7	17.9	109	57.5	83.0	32	7
D91066	56.7	29.4	23	11	18.0	112	57.0	82.9	32	7
D91080	56.1	29.8	23	12	17.5	114	52.3	82.9	30	6
D901297	57.0	31.1	24	7	17.7	115	59.0	83.9	29	6
D931114	56.1	25.4	5	25	17.2	113	56.3	83.2	29	5
D91-1526	57.2	31.1	27	7	17.7	119	51.4	83.2	32	6
D940027	56.6	29.9	29	10	17.6	116	53.8	83.1	32	6
D940098	59.5	28.7	11	14	16.1	115	56.1	83.3	31	4
D941030	55.1	29.1	12	13	18.2	119	50.9	82.3	31	6
D941033	55.8	27.8	21	13	17.3	115	53.3	82.9	31	6
D941038	56.6	26.8	7	19	18.2	121	55.3	83.0	32	7
D941051	56.3	28.5	11	14	17.6	120	55.6	83.1	31	6
D941229	57.4	34.7	55	5	17.2	114	57.0	83.7	30	6
D941256	56.5	29.6	14	15	17.8	111	53.8	83.2	31	5
D941261	56.8	29.4	14	12	18.4	117	56.5	83.2	32	7
D941276	54.7	29.4	9	13	17.9	124	53.7	83.4	26	5
D941514	57.0	31.4	36	8	16.7	118	56.1	83.6	30	5
D941515	57.2	34.5	40	7	16.6	117	56.1	84.0	30	5
D941518	55.4	29.2	19	11	16.8	105	51.4	83.7	30	5

1998 Uniform Regional Durum Nursery

Williston, ND, Rep #2

Durum Variety	TW (lb/bu)	1000 KWT (grams)	Kernel Size		Protein (14% mb)	NIR Hardness	Semo Ext (%)	Semo Color		Mixogram Pattern
			Large (%)	Small (%)				L	b	
MINDUM	56.7	28.1	16	12	18.1	106	54.2	83.5	24	2
RUGBY	57.0	30.4	22	10	17.3	111	60.7	82.6	28	2
VIC	57.7	31.8	20	9	17.4	107	59.8	84.2	30	5
MEDORA	56.5	30.0	33	8	17.3	110	57.1	83.8	30	4
LLOYD	53.3	28.6	11	14	17.8	106	56.7	83.4	30	5
MONROE	54.9	30.7	26	7	17.6	119	55.0	83.7	30	5
RENVILLE	55.8	27.7	9	10	17.9	117	55.0	83.7	28	3
MUNICH	54.0	24.9	6	18	18.8	121	59.0	82.6	31	3
BEN	57.2	30.6	6	10	18.4	118	56.9	84.0	27	5
BELZER	54.8	30.3	22	10	17.4	118	59.8	82.9	30	5
D89135	57.2	28.7	16	11	18.1	123	56.1	83.0	33	7
D901313	57.3	28.8	12	13	17.0	119	57.0	83.4	29	6
D901442	57.9	28.7	18	10	17.4	112	57.0	83.4	30	5
D91058	55.1	27.2	11	12	18.4	115	52.3	83.1	32	6
D91066	56.8	28.6	18	11	18.3	113	58.3	82.7	32	7
D91080	54.6	26.7	12	17	17.5	111	54.6	82.9	31	5
D901297	57.2	30.4	28	8	17.7	107	61.0	83.8	29	6
D931114	56.2	25.6	9	21	16.5	114	57.9	83.0	29	4
D91-1526	57.8	32.2	36	5	17.2	120	55.0	83.1	31	7
D940027	56.8	30.7	16	10	17.1	109	55.2	83.1	30	6
D940098	59.5	26.5	8	16	16.5	101	54.2	82.9	31	5
D941030	56.5	30.3	15	10	17.1	113	57.1	82.7	32	6
D941033	54.9	27.2	8	16	16.9	115	52.8	82.2	31	6
D941038	58.6	27.9	16	12	17.4	112	52.8	83.0	33	7
D941051	56.7	27.8	15	12	17.0	110	55.1	83.3	30	6
D941229	57.6	34.6	56	5	17.6	108	56.5	83.2	30	5
D941256	56.2	31.0	30	9	17.9	109	57.5	82.6	33	5
D941261	56.6	29.2	14	11	18.1	112	56.1	83.1	32	7
D941276	54.7	28.6	7	15	18.3	110	52.8	83.5	26	6
D941514	58.0	33.3	41	5	17.2	110	55.0	84.0	29	4
D941515	58.2	35.5	38	6	16.7	116	55.6	84.0	29	4
D941518	54.9	26.9	10	14	na					

Label	PEDIGREE	P.I No.	YEAR	ORIGIN
Mindum**	MINDUM	5296	1929	MN
Rugby**	LANGDON/3/Ld357//CI 7780/Ld362/4/Br180/WELLS	17284	1970	ND-USDA
VIC**	EDMORE/WARD	17789	1976	ND-USDA
MEDORA**	WARD/MACOUN		1980	U. SASK.
LLOYD*	CANDO/EDMORE	476211	1978	ND-USDA
MONROE**	D7456/VIC	478289	1981	ND-USDA
RENVILLE**	ROLETTE/VIC	510696	1985	ND-USDA
MUNICH	D8030/D8016	593887	1988	ND-USDA
BEN	D8024/MONROE	596557	1991	ND-USDA
BELZER**	D7798DT367	603286	1991	
MAIER	D8193/D8335		1993	ND-USDA
(D89135)				
MOUNTRAIL	D8479/RENVILLE		1994	ND-USDA
(D901313)				
D901442	MUNICH/D8469		1994	ND-USDA
D901518	D8428/SCEPTRE		1994	ND-USDA
D901297	D8458//LDN(5B)/VIC		1997	ND-USDA
D91058	D84102/D8459		1995	ND-USDA
D91066	D84102/D8459		1995	ND-USDA
D91080*	DT606/D8291		1995	ND-USDA
D931114*	D86741/D88135		1997	ND-USDA
D91-1526	LAKER/D8193		1997	AGRIPRO
D940027*	D88104/D88207		1998	ND-USDA
D940098*	D88450/D87436		1998	ND-USDA
D941030**	D8460/D88104		1998	ND-USDA
D941033	D8460/D88104		1998	ND-USDA
D941038	D86117/D88289		1998	ND-USDA
D941051**	D88058/RENVILLE		1998	ND-USDA
D941229**	D88820/D88089/D88058		1998	ND-USDA
D941256	D89115/D89172		1998	ND-USDA
D941261	D89135/D88273		1998	ND-USDA
D941276	D8479/D88273		1998	ND-USDA
D941514**	D88277/D901358		1998	ND-USDA
D941515**	D88277/D901358		1998	ND-USDA

*, ** DENOTES SEMIDWARF AND TALL ENTRIES, RESPECTIVELY.

Section XIV

Uniform Regional Durum Nursery

– 1999 Crop

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1999 Uniform Regional Durum Nursery

Carrington, ND
Dryland
FN>375 sec

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
RUGBY	59.1	35.0	60	3	62.3	13.1	123	83	27	1
MONROE	57.7	36.1	69	1	62.6	13.6	118	83	27	2
RENVILLE	59.0	35.0	49	4	64.8	12.9	130	83	26	2
MUNICH	58.8	34.0	59	2	63.8	12.7	123	83	28	2
BEN	58.1	37.9	67	3	64.2	14.0	131	83	26	3
BELZER	56.6	38.5	72	2	63.5	13.5	115	83	28	4
MAIER	57.0	32.4	45	2	63.2	14.6	112	82	30	5
MOUNTRAIL	58.4	35.6	57	4	63.2	13.1	134	83	24	3
LEBSOCK	60.1	36.1	63	2	63.6	12.7	122	83	28	3
PLAZA	56.4	34.2	55	3	62.9	13.2	118	83	28	3
AC AVONLEA	56.6	35.6	67	2	63.6	14.1	116	82	29	3
D940027	54.5	33.7	50	5	61.7	12.8	107	83	26	3
D940098	54.8	27.0	23	7	61.0	14.0	102	82	27	3
D941030	57.0	37.5	58	3	64.2	13.4	109	83	29	3
D941033	57.5	35.5	55	3	62.6	13.5	121	83	28	3
D941038	58.5	32.5	50	4	61.3	13.2	126	83	29	3
D941229	57.7	43.3	83	2	60.7	13.5	121	83	27	3
D941261	59.0	36.6	64	2	63.2	13.6	122	83	29	2
D941276	55.1	34.7	45	6	61.0	13.8	116	83	24	3
D941514	58.0	39.1	72	2	61.3	13.9	119	83	28	3
D941515	58.9	37.9	71	2	61.0	13.1	113	84	27	3
D95075	56.6	33.0	70	2	60.2	12.8	118	83	26	3
D95077	58.6	35.2	52	2	63.2	12.8	118	84	30	3
D95081	55.1	32.3	50	3	62.3	13.0	96	83	29	4
D95580	56.9	36.9	66	3	61.9	13.0	117	83	27	4
D95672	60.4	37.2	64	2	66.0	13.5	122	84	28	3
D95699	56.8	37.6	71	1	61.3	14.2	121	82	28	4
D95744	59.4	40.2	72	1	61.7	13.5	117	83	27	3
D95745	56.6	34.8	47	4	61.7	13.4	102	83	28	3
D95746	57.8	33.8	55	3	62.6	14.0	120	83	27	3
D95775	55.8	31.6	43	6	61.9	13.8	110	82	30	3
D95776	55.2	31.0	42	6	61.0	14.3	113	83	29	3

1999 Uniform Regional Durum Nursery

Carrington, ND
Irrigated
FN>260 sec

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
RUGBY	53.9	31.9	59	4	57.5	15.5	132	81	27	3
MONROE	58.2	38.2	69	4	60.4	14.1	120	84	22	3
RENVILLE	54.6	30.9	49	9	59.4	16.1	133	82	26	4
MUNICH	50.8	27.5	39	7	56.1	16.2	118	81	29	4
BEN	55.4	26.7	46	8	58.9	14.7	130	82	27	4
BELZER	55.0	30.2	46	7	59.4	15.9	130	82	29	5
MAIER	55.5	31.4	51	5	61.3	16.7	131	82	29	6
MOUNTRAIL	57.4	34.6	63	4	61.0	13.8	124	83	28	3
LEBSOCK	54.2	35.6	71	3	58.9	15.3	139	82	27	5
PLAZA	56.8	38.6	76	2	60.4	15.2	124	82	28	5
AC AVONLEA	56.2	34.5	61	5	61.0	15.3	127	83	26	4
D940027	55.5	35.8	63	4	58.1	15.7	128	82	27	5
D940098	54.7	30.5	63	3	60.0	15.7	124	82	27	4
D941030	54.8	31.2	47	8	60.0	16.0	115	82	28	5
D941033	53.7	29.9	48	6	60.0	16.6	121	81	30	5
D941038	57.2	30.2	51	4	59.0	15.2	123	83	29	5
D941229	55.6	31.7	57	4	60.6	16.0	136	82	26	5
D941261	55.3	34.4	52	6	61.0	14.9	125	83	28	5
D941276	55.2	28.9	34	10	58.7	15.6	117	82	30	6
D941514	55.0	31.9	56	6	60.0	15.5	120	82	27	7
D941515	56.3	39.2	80	1	60.4	14.3	119	83	27	5
D95075	56.4	37.3	67	4	60.0	14.7	118	83	26	4
D95077	58.4	34.5	64	4	62.9	15.2	124	83	27	4
D95081	55.4	30.1	43	4	59.6	15.4	133	82	28	3
D95580	53.7	30.7	44	5	60.0	16.1	129	82	30	5
D95672	56.5	31.1	55	7	59.6	15.9	129	83	27	6
D95699	56.1	34.7	57	5	58.5	14.3	129	83	27	4
D95744	54.5	30.7	46	8	57.5	16.8	139	82	27	6
D95745	53.6	31.9	47	8	58.1	15.4	119	83	26	6
D95746	57.0	38.0	57	6	61.3	14.3	144	83	28	3
D95775	56.4	37.9	74	2	59.4	15.1	126	83	26	6
D95776	55.4	31.7	50	6	58.1	16.4	146	81	28	7

1999 Uniform Regional Durum Nursery

Langdon, ND
FN>270 sec

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
RUGBY	60.6	39.8	76	1	63.6	14.6	124	84	25	3
MONROE	59.3	42.6	77	1	64.2	14.5	126	84	25	7
RENVILLE	60.9	39.1	75	2	63.7	14.3	131	84	23	6
MUNICH	60.6	42.6	73	1	65.4	15.1	128	84	27	6
BEN	60.2	43.3	84	1	64.5	14.3	138	84	23	6
BELER	59.4	39.7	84	1	63.8	15.2	130	84	27	6
MAIER	60.2	41.2	73	2	65.1	14.5	135	83	28	8
MOUNTRAIL	58.9	42.9	63	2	65.4	14.2	130	84	24	5
LEB SOCK	61.4	42.4	84	0	65.4	12.7	109	84	24	5
PLAZA	60.1	41.3	76	3	65.7	15.5	125	83	26	4
AC AVONLEA	57.8	42.7	78	2	64.2	16.0	138	83	27	4
D940027	60.1	41.7	57	3	66.0	12.5	119	84	25	4
D940098	60.6	34.4	64	4	60.4	13.4	121	83	26	4
D941030	59.7	44.4	82	1	64.5	14.9	128	84	26	4
D941033	60.3	40.8	73	2	65.1	14.1	127	83	26	4
D941038	62.2	37.9	72	3	63.2	14.2	151	84	28	5
D941229	59.0	46.1	87	0	64.8	14.4	135	83	26	6
D941261	61.3	41.8	81	1	66.0	15.7	151	84	29	7
D941276	60.1	42.6	78	2	60.8	14.4	142	83	22	6
D941514	60.3	46.5	88	0	64.2	14.6	151	84	24	5
D941515	58.6	42.6	74	2	63.6	14.6	137	83	26	5
D95075	58.0	38.0	73	4	61.9	13.7	136	83	26	5
D95077	60.3	40.0	70	3	64.8	14.0	128	84	28	5
D95081	60.7	43.3	79	1	64.5	13.5	138	85	27	4
D95580	60.4	40.0	74	3	63.8	13.7	131	83	26	5
D95672	62.3	40.0	77	2	67.3	14.9	145	84	26	3
D95699	59.9	41.8	82	1	66.0	14.8	124	83	28	5
D95744	61.8	42.6	86	1	65.1	14.4	142	84	25	4
D95745	61.0	48.1	81	2	64.5	14.6	140	84	25	4
D95746	61.7	43.7	79	1	64.2	13.0	132	84	24	4
D95775	61.8	41.7	79	1	64.2	14.6	150	83	28	4
D95776	60.2	39.8	77	2	62.6	13.1	134	83	27	3

1999 Uniform Regional Durum Nursery

Williston, ND
FN>400 sec

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
RUGBY	61.1	39.8	73	2	61.5	15.3	143	84	27	1
MONROE	60.6	44.2	82	0	61.3	15.4	142	84	29	3
RENVILLE	61.6	38.9	55	2	62.3	15.1	139	85	27	3
MUNICH	61.0	39.1	62	1	62.9	14.9	144	84	30	3
BEN	61.4	43.7	81	1	61.9	15.4	135	83	26	4
BELZER	60.0	43.9	80	0	60.4	14.6	130	84	27	5
MAIER	61.8	43.5	78	1	62.3	15.5	142	84	31	5
MOUNTRAIL	61.0	43.1	64	1	61.3	14.8	147	84	27	4
LEBSOCK	61.8	41.7	76	1	60.4	14.8	136	85	28	4
PLAZA	61.3	41.7	68	1	61.0	14.8	135	84	28	4
AC AVONLEA	60.1	41.3	73	0	59.4	15.4	138	84	31	3
D940027	61.6	45.2	76	1	61.0	13.5	133	85	28	3
D940098	62.6	38.9	68	1	61.3	13.8	130	84	29	3
D941030	60.6	42.7	69	1	61.7	15.8	141	84	30	4
D941033	61.0	40.7	70	1	63.2	15.0	138	84	28	4
D941038	61.3	40.5	73	1	62.0	14.7	137	84	30	3
D941229	61.0	47.4	90	0	61.3	15.1	134	85	27	4
D941261	61.0	41.3	65	2	62.3	15.5	134	84	31	4
D941276	59.8	40.0	50	3	61.0	14.0	129	85	24	3
D941514	60.2	44.4	78	1	59.4	15.1	128	84	27	4
D941515	60.7	42.7	76	2	58.5	14.9	132	84	27	4
D95075	61.0	41.3	73	0	60.4	14.8	128	84	28	3
D95077	60.3	39.4	44	3	62.3	15.1	141	84	33	4
D95081	61.0	41.2	61	2	61.9	14.6	128	85	30	4
D95580	60.0	42.0	78	2	59.4	15.1	133	85	27	5
D95672	61.8	40.0	71	1	62.3	15.1	127	85	28	3
D95699	59.7	41.2	72	1	60.0	15.8	137	84	30	6
D95744	61.6	47.1	85	0	59.4	15.7	142	85	28	5
D95745	61.3	43.3	76	0	61.3	14.9	131	84	30	3
D95746	61.4	43.3	76	1	59.8	15.1	137	85	29	3
D95775	61.1	40.3	77	1	61.3	14.9	134	84	30	3
D95776	60.6	43.1	71	0	61.7	15.5	146	84	30	2

1999 Uniform Regional Durum Nursery

Bozeman MT
FN>370 sec

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
RUGBY	60.2	35.0	43	4	59.8	16.2	153	84	29	1
MONROE	60.9	42.7	77	0	58.3	15.4	148	85	30	2
RENVILLE	60.2	35.6	32	6	61.0	15.9	152	85	29	3
MUNICH	59.6	35.2	37	4	59.4	15.8	131	85	31	3
BEN	61.7	41.7	68	4	59.0	15.4	134	85	28	6
BELZER	59.8	37.3	56	2	58.1	15.1	147	85	30	6
MAIER	61.0	39.5	53	2	59.8	16.0	146	84	32	6
MOUNTRAIL	59.9	35.2	38	4	56.1	15.5	143	85	28	6
LEBSOCK	61.4	31.2	50	2	60.4	15.6	145	85	30	6
PLAZA	58.7	31.7	24	11	54.7	15.7	128	84	32	6
AC AVONLEA	60.1	37.6	68	2	58.5	17.1	142	84	31	5
D940027	61.1	38.2	54	2	56.6	14.9	130	85	31	7
D940098	62.4	36.5	49	3	57.1	14.9	141	84	31	5
D941030	60.2	37.5	55	1	60.0	15.7	132	84	31	6
D941033	59.5	34.1	42	5	58.1	16.0	141	84	31	6
D941038	61.7	35.5	53	4	55.7	15.1	138	85	33	7
D941229	62.0	47.4	86	0	61.9	15.2	132	85	29	5
D941261	61.3	37.7	48	3	61.9	16.2	141	85	32	6
D941276	59.6	35.6	56	4	60.0	15.5	130	85	26	5
D941514	61.0	42.7	70	1	60.0	15.7	144	84	28	5
D941515	60.6	39.4	62	4	59.6	15.5	150	85	28	3
D95075	61.2	36.8	59	3	61.0	15.1	143	84	30	5
D95077	60.9	36.4	39	5	62.5	15.6	128	84	32	7
D95081	62.5	36.4	45	4	61.0	15.1	141	85	32	7
D95580	59.8	38.0	59	2	60.0	15.7	144	85	28	7
D95672	61.4	39.4	51	2	61.9	15.7	131	85	31	5
D95699	59.7	38.5	56	2	59.0	16.5	140	84	31	7
D95744	60.6	42.9	73	1	59.0	15.3	140	85	30	6
D95745	61.3	38.8	54	2	59.0	15.1	141	85	31	6
D95746	61.1	38.9	54	2	59.0	15.2	138	85	31	5
D95775	61.4	37.3	38	4	59.0	14.6	149	84	32	5
D95776	61.4	39.7	50	2	59.6	14.6	149	85	31	5

1999 Uniform Regional Durum Nursery

Sidney, MT
Dryland
FN>400 sec

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
RUGBY	62.6	39.8	73	2	63.6	13.1	139	84	28	1
MONROE	62.4	43.7	82	2	63.8	12.6	137	84	29	2
RENVILLE	62.3	33.6	64	3	65.4	12.5	127	84	28	3
MUNICH	61.6	38.2	58	4	63.6	12.4	136	84	31	2
BEN	63.8	44.1	81	2	64.2	12.2	141	84	28	2
BELZER	61.0	45.2	81	1	64.8	12.2	116	84	29	2
MAIER	63.4	42.4	77	1	64.8	12.3	133	84	32	2
MOUNTRAIL	61.8	39.4	64	2	64.2	12.2	135	85	27	2
LEBSOCK	64.3	42.2	77	2	66.0	12.0	129	84	28	1
PLAZA	62.2	40.5	68	2	66.0	11.2	117	84	30	1
AC AVONLEA	61.9	41.7	79	2	65.7	12.5	134	84	31	2
D940027	62.8	43.9	77	1	65.7	10.3	115	85	27	2
D940098	64.8	39.4	74	2	65.7	11.6	124	84	29	3
D941030	61.5	42.4	69	2	64.2	13.1	135	84	30	4
D941033	61.9	41.0	63	2	64.2	13.0	140	84	30	4
D941038	62.6	36.9	59	3	62.3	12.6	132	84	32	5
D941229	61.1	48.8	90	0	62.3	12.9	130	84	28	4
D941261	62.6	41.3	76	2	65.1	12.4	134	84	30	4
D941276	61.8	41.2	63	2	64.2	11.9	126	84	24	3
D941514	61.8	44.8	78	2	64.2	13.7	140	84	28	4
D941515	62.9	44.8	78	2	63.8	12.0	132	84	28	2
D95075	62.6	40.5	72	2	64.2	12.1	130	84	29	2
D95077	62.6	41.7	64	3	64.8	12.2	125	84	31	3
D95081	62.2	40.2	64	3	66.0	12.3	120	83	30	3
D95580	61.6	40.3	66	2	65.1	11.7	124	84	28	4
D95672	63.4	42.9	74	2	67.0	13.4	128	84	30	4
D95699	61.5	41.7	73	2	65.4	12.4	132	84	30	3
D95744	62.1	42.9	74	2	63.8	13.2	134	84	29	4
D95745	62.8	43.1	74	1	65.7	12.3	123	84	30	4
D95746	62.6	41.5	68	2	64.2	12.1	122	81	29	3
D95775	62.4	39.7	67	2	64.2	13.1	146	83	32	6
D95776	63.0	42.4	68	1	66.0	12.3	135	83	31	5

1999 Uniform Regional Durum Nursery

Sidney, MT

Irrigated

FN>400 sec

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
RUGBY	59.6	37.7	62	4	67.6	13.3	121	82	27	2
MONROE	61.3	45.2	78	2	67.9	13.2	120	83	28	3
RENVILLE	59.1	43.1	78	2	66.0	14.1	123	83	29	6
MUNICH	61.3	41.7	75	3	68.6	12.6	121	83	29	2
BEN	61.4	45.7	82	2	67.9	12.4	119	84	26	3
BELZER	57.4	44.4	81	2	67.0	12.7	107	84	28	4
MAIER	61.0	40.8	71	2	66.0	13.5	113	83	29	4
MOUNTRAIL	60.8	45.5	77	3	67.0	12.8	135	83	25	3
LEB SOCK	61.8	40.3	77	2	67.9	12.6	109	83	27	3
PLAZA	62.1	43.7	77	2	67.6	11.7	118	83	28	2
AC AVONLEA	58.6	42.9	81	1	66.0	14.0	138	83	29	3
D940027	60.1	47.1	82	2	66.0	11.7	120	83	26	2
D940098	62.6	39.4	76	4	65.4	11.7	122	84	27	2
D941030	60.6	46.3	83	1	68.0	12.2	119	83	28	2
D941033	60.5	42.2	76	2	67.6	13.0	131	84	27	3
D941038	61.6	41.5	76	2	65.4	12.2	128	84	30	3
D941229	59.1	47.4	84	2	67.3	12.7	122	83	28	3
D941261	61.7	43.9	79	2	67.3	12.9	122	84	30	3
D941276	61.0	46.1	75	2	63.6	12.8	132	84	23	3
D941514	60.4	46.3	83	1	66.7	13.0	123	84	27	3
D941515	60.6	45.2	80	2	66.0	12.9	130	83	27	3
D95075	61.7	43.3	72	3	64.4	12.6	132	83	28	3
D95077	61.3	45.8	78	2	65.1	12.4	122	84	30	3
D95081	59.2	41.8	70	3	66.0	12.2	120	84	28	4
D95580	59.4	42.6	76	3	67.0	11.9	117	82	26	4
D95672	62.0	43.7	73	3	67.3	13.5	124	84	28	4
D95699	62.1	41.0	66	4	68.2	13.1	137	84	26	4
D95744	60.9	49.5	85	1	67.0	12.8	123	84	26	4
D95745	61.0	42.7	72	2	65.4	13.6	133	83	28	4
D95746	60.8	44.1	72	3	66.7	13.0	117	84	28	4
D95775	60.7	42.7	67	4	66.0	12.3	125	83	30	4
D95776	60.5	41.5	66	3	66.4	12.6	122	83	29	3

1999 Uniform Regional Durum Nursery

Crookston, MN
FN>400 sec

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
RUGBY	55.3	30.0	38	9	61.7	15.5	115	81	25	3
MONROE	55.5	34.7	53	7	61.7	14.7	122	82	26	5
RENVILLE	56.6	33.7	41	9	66.0	15.3	127	81	23	5
MUNICH	57.9	33.6	48	5	64.5	14.2	124	83	28	3
BEN	57.9	39.8	69	3	64.5	15.0	128	79	23	6
BELZER	52.6	37.0	63	4	61.7	15.4	117	79	24	8
MAIER	56.3	33.4	47	4	63.2	15.5	120	81	27	8
MOUNTRAIL	55.8	32.2	48	7	62.6	14.6	121	82	23	8
LEBSOCK	58.8	34.5	47	6	64.2	14.5	128	82	25	6
PLAZA	na									
AC AVONLEA	55.5	32.6	45	6	62.6	15.4	130	82	28	5
D940027	na									
D940098	55.3	26.8	30	11	59.4	14.9	115	81	26	7
D941030	55.7	36.6	55	5	63.2	15.1	134	80	26	6
D941033	56.6	35.6	49	7	63.9	15.0	124	81	27	6
D941038	57.0	31.5	43	7	61.3	14.9	122	81	28	7
D941229	53.3	37.3	78	2	59.8	14.2	122	79	24	6
D941261	56.5	32.7	45	6	62.9	17.0	140	81	27	8
D941276	57.0	36.4	46	7	63.8	14.8	128	82	22	7
D941514	55.8	36.2	64	4	61.9	15.8	137	82	25	7
D941515	58.7	37.2	67	7	64.2	14.6	128	82	25	7
D95075	57.6	37.3	67	4	61.9	14.7	134	81	25	7
D95077	57.4	30.8	30	10	60.7	14.7	132	83	29	7
D95081	58.3	33.9	47	5	64.2	14.5	133	82	28	7
D95580	55.8	32.1	49	4	61.9	15.6	131	79	25	8
D95672	58.4	34.4	58	4	65.1	15.3	137	83	24	6
D95699	54.6	36.5	62	4	59.4	16.6	127	80	27	8
D95744	57.4	37.3	66	3	61.0	15.2	134	81	26	6
D95745	57.9	34.4	50	4	62.3	15.1	126	80	25	7
D95746	58.6	35.0	48	4	61.9	14.8	132	82	26	7
D95775	54.2	28.8	36	12	61.0	16.2	137	79	27	8
D95776	58.6	35.2	50	4	62.3	15.2	135	82	27	6

1999 Uniform Regional Durum Nursery

Morris, MN
FN>270 sec

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
RUGBY	55.7	30.2	52	5	60.4	15.7	143	80	26	2
MONROE	56.5	38.2	71	2	61.9	14.9	134	82	27	6
RENVILLE	56.1	31.9	37	7	62.3	15.4	148	82	25	6
MUNICH	56.0	35.1	61	5	61.3	15.0	128	82	28	5
BEN	57.1	36.8	63	3	60.7	16.2	146	81	25	6
BELZER	55.3	37.2	61	4	61.0	15.8	139	81	27	7
MAIER	56.2	36.2	67	2	62.3	14.2	133	81	28	5
MOUNTRAIL	50.3	35.8	63	4	61.9	15.1	152	81	25	4
LEB SOCK	57.9	35.0	64	3	61.3	13.8	128	82	26	4
PLAZA	57.0	33.2	64	5	60.4	14.5	134	81	27	4
AC ANONLEA	57.2	34.6	59	4	60.4	16.1	150	81	28	5
D940027	55.7	34.6	54	5	59.4	13.9	126	81	26	4
D940098	58.0	33.4	57	4	59.8	13.6	133	81	27	5
D941030	56.2	37.2	63	4	59.4	15.0	132	81	28	6
D941033	57.2	33.8	53	5	60.4	15.2	139	81	27	6
D941038	57.4	31.8	53	4	59.4	13.8	133	81	27	5
D941229	53.4	35.2	74	2	56.1	14.9	140	81	27	6
D941261	55.7	34.8	57	3	61.9	16.6	142	80	28	7
D941276	56.8	37.6	61	4	61.3	14.4	137	82	23	5
D941514	55.7	38.8	74	1	60.4	14.2	135	82	25	5
D941515	56.5	37.7	65	3	58.9	15.1	138	82	26	5
D95075	54.2	31.2	74	4	57.9	14.3	121	80	26	4
D95077	56.6	34.7	50	4	60.4	15.0	133	81	28	6
D95081	55.4	34.6	56	3	60.7	14.7	132	82	28	6
D95580	56.8	35.0	62	3	58.1	15.7	145	82	25	7
D95672	57.9	35.4	66	2	62.3	15.6	132	82	27	6
D95699	51.9	32.7	66	3	57.0	15.4	127	79	27	6
D95744	53.2	34.8	67	2	56.1	15.7	130	79	25	6
D95745	56.0	35.0	66	3	57.9	15.8	128	81	27	8
D95746	57.4	38.9	67	3	59.6	14.9	137	81	26	8
D95775	55.3	30.7	43	4	57.9	15.5	139	80	29	7
D95776	56.5	34.4	52	4	59.8	14.9	140	80	28	8

1999 Uniform Regional Durum Nursery

Selby, SD
FN>400 sec

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
RUGBY	62.6	41.0	77	2	67.6	13.8	139	84	27	2
MONROE	61.0	40.0	83	2	67.9	14.0	139	83	28	6
RENVILLE	61.4	41.5	70	2	67.3	14.2	140	85	26	3
MUNICH	60.6	36.8	63	2	66.4	13.3	131	84	30	4
BEN	61.6	45.2	61	2	66.0	14.8	127	84	27	6
BELZER	59.0	38.6	73	2	65.1	13.6	142	83	30	5
MAIER	61.6	43.1	77	2	66.0	15.1	140	83	31	7
MOUNTRAIL	60.9	42.7	73	2	66.0	13.9	142	84	26	3
LEBSOCK	62.3	40.8	74	2	66.0	14.2	144	84	27	3
PLAZA	60.5	38.8	60	4	66.0	13.5	134	83	29	3
AC AVONLEA	60.1	40.0	71	2	64.5	15.0	145	83	31	3
D940027	61.4	38.6	62	3	67.0	12.8	133	84	28	3
D940098	63.1	35.8	57	4	64.2	13.4	142	83	29	3
D941030	61.0	42.2	73	3	65.7	14.4	136	83	30	3
D941033	60.5	41.2	73	2	65.7	14.5	142	83	28	3
D941038	61.9	39.2	68	3	64.5	14.0	136	84	31	4
D941229	61.3	48.1	67	3	67.3	14.1	134	83	28	4
D941261	61.2	41.3	73	2	67.3	15.3	141	83	30	5
D941276	60.6	44.1	70	3	65.1	13.6	131	84	24	3
D941514	61.8	48.1	83	3	67.0	13.9	140	84	27	3
D941515	61.9	46.7	81	2	66.4	13.9	141	84	27	3
D95075	60.6	42.9	80	2	65.7	14.0	133	83	27	3
D95077	61.4	40.5	60	4	66.3	13.5	138	84	30	4
D95081	61.6	42.0	68	2	67.9	13.4	132	84	29	4
D95580	59.7	37.7	67	3	65.4	14.2	131	83	28	6
D95672	62.4	42.6	77	2	67.6	14.7	125	84	28	4
D95699	59.3	40.5	72	2	64.2	15.4	137	83	29	7
D95744	61.4	45.2	81	1	62.0	14.3	136	84	28	5
D95745	61.8	42.9	76	2	64.5	14.1	136	84	28	6
D95746	62.3	42.7	74	2	65.4	14.0	130	84	29	5
D95775	60.5	37.9	59	4	63.2	14.2	136	83	31	6
D95776	60.5	41.8	65	4	64.5	14.2	137	84	30	4

1999 Uniform Regional Durum Nursery

Swift Current, SK
FN>400 sec

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
RUGBY	63.9	40.7	69	2	65.1	10.5	131	85	28	1
MONROE	63.0	44.4	74	1	65.1	10.4	119	85	29	2
RENVILLE	62.8	38.5	51	3	67.6	8.9	106	86	25	2
MUNICH	63.9	36.9	51	4	66.0	10.1	122	84	30	2
BEN	64.9	44.4	83	0	66.4	10.4	127	85	27	2
BELZER	62.0	43.9	77	3	66.0	10.4	122	84	29	3
MAIER	64.7	41.3	78	2	66.0	10.4	134	85	30	2
MOUNTRAIL	62.8	38.6	77	2	65.4	9.9	130	85	26	2
LEBSOCK	64.5	39.7	71	1	66.0	10.0	122	85	26	2
PLAZA	63.9	40.7	77	1	65.1	9.5	128	84	28	1
AC AVONLEA	63.5	43.1	88	0	66.4	10.2	123	85	29	2
D940027	64.6	42.7	76	0	67.0	9.4	122	85	26	2
D940098	65.4	37.0	67	2	65.1	9.2	115	86	27	2
D941030	62.9	41.0	63	1	65.7	11.1	130	84	29	2
D941033	63.1	39.4	54	2	64.8	10.8	125	84	28	2
D941038	64.7	36.8	64	2	64.5	10.1	132	85	29	2
D941229	64.2	49.0	94	0	65.4	9.8	118	85	27	2
D941261	64.2	41.0	87	1	66.4	11.0	128	84	31	2
D941276	63.8	39.5	62	2	64.8	9.3	112	85	24	2
D941514	64.3	42.9	76	1	65.7	12.3	129	84	28	2
D941515	64.1	45.5	86	1	65.7	10.5	126	84	27	2
D95075	64.4	40.5	80	1	65.4	9.9	129	84	27	1
D95077	63.7	39.5	56	2	66.0	9.8	117	85	29	2
D95081	63.8	41.7	66	1	66.0	9.3	118	85	28	2
D95580	62.8	39.7	66	2	64.8	10.1	126	84	27	3
D95672	65.1	42.9	74	1	68.6	10.2	132	85	28	1
D95699	63.9	42.7	83	0	64.5	10.1	118	85	28	1
D95744	64.7	45.2	84	1	64.2	9.8	123	85	27	1
D95745	64.7	40.8	89	0	66.0	9.7	125	85	28	1
D95746	63.9	38.8	51	1	65.7	10.8	127	84	28	2
D95775	63.6	37.6	54	3	64.2	9.3	128	84	30	1
D95776	63.2	39.5	56	1	65.1	10.2	123	84	29	2

Label	PEDIGREE	P.I No.	YEAR	ORIGIN
Rugby**	LANGDON/3/Ld357//CI 7780/Ld362/4/Br180/WELLS	17284	1970	ND-USDA
MONROE**	D7456/VIC	478289	1981	ND-USDA
RENVILLE**	ROLETTE/VIC	510696	1985	ND-USDA
MUNICH	D8030/D8016	593887	1988	ND-USDA
BEN	D8024/MONROE	596557	1991	ND-USDA
BELZER**	D7798DT367	603286	1991	ND-USDA
MAIER	D8193/D8335		1993	ND-USDA
MOUNTRAIL	D8479/RENVILLE		1994	ND-USDA
LEBSOCK	MUNICH/D8469		1994	ND-USDA
PLAZA*	DT606/D8291		1995	ND-USDA
AC AVONLEA	SC8267-AD2A/D84065		1999	AG-CAN.
D940027*	D88104/D88207		1998	ND-USDA
D940098*	D88450/D87436		1998	ND-USDA
D941030**	D8460/D88104		1998	ND-USDA
D941033	D8460/D88104		1998	ND-USDA
D941038	D86117/D88289		1998	ND-USDA
D941229**	D88820/D88089/D88058		1998	ND-USDA
D941261	D89135/D88273		1998	ND-USDA
D941276	D8479/D88273		1998	ND-USDA
D941514**	D88277/D901358		1998	ND-USDA
D941515**	D88277/D901358		1998	ND-USDA
D95075*	D89025/D89365		1999	ND-USDA
D95077*	D901278/D89006		1999	ND-USDA
D95081*	D89071/D88058/D89135		1999	ND-USDA
D95580	D87240/D88135/D88276		1999	ND-USDA
D95672	SCEPTRE/RENVILLE		1999	ND-USDA
D95699	D87038/D89135		1999	ND-USDA
D95744	D89365/D89329		1999	ND-USDA
D95745	D89365/D89329		1999	ND-USDA
D95746	D89365/D89329		1999	ND-USDA
D95775	D89221/D89313		1999	ND-USDA
D95776	D89221/D89313		1999	ND-USDA

*, ** DENOTES SEMIDWARF AND TALL ENTRIES, RESPECTIVELY.

Section XV

California Durum

— 1998 Crop

LOCATION

PAGE #

UC Davis

1, 2

Durum Wheat Quality Tests - 1998 Crop
UC Davis, CA

Rep #	Sample ID	TW (lb/bu)	1000 KWT (g)	Sizing		Wheat		NIR hard-ness	Semo ext (%)	Semo		Semo color		Mix Pat	Specks /10 sq in	Falling number (sec)	Spaghetti color		Cooked weight (g)	Firm (g/cm)	Res (%)
				LG (%)	SM (%)	Pro 14%	Ash 14%			Pro 14%	Ash 14%	L	b				L	b			
1	98204-1	63.6	52.4	94	0	14.69	1.58	124.1	66.3	13.28	0.72	85.0	27.1	3	6.3	400	62.2	44.3	30.5	6.9	6.0
1	98204-2	63.0	55.9	92	0	12.60	1.34	111.2	69.8	11.25	0.64	85.8	26.1	4	1.9	400	63.2	43.0	31.4	5.7	5.7
1	98204-3	63.8	42.0	74	2	13.02	1.42	119.3	65.6	11.99	0.66	84.8	27.7	3	1.8	400	61.8	47.9	31.9	5.7	6.3
1	98204-4	62.1	45.2	76	1	12.45	1.41	109.3	66.0	11.26	0.61	85.2	31.6	4	1.8	400	64.1	52.0	32.8	5.2	6.3
1	98204-5	61.0	45.7	83	1	13.93	1.49	118.4	65.5	13.03	0.66	85.5	28.5	6	0.0	400	62.7	49.6	31.0	6.4	5.3
1	98204-6	62.5	53.5	93	0	14.49	1.53	111.3	66.4	13.25	0.68	85.6	28.6	6	2.5	400	63.4	50.3	30.8	7.8	5.6
1	98204-7	61.7	44.1	67	1	12.90	1.51	117.2	65.0	11.70	0.64	85.8	26.0	5	0.6	400	63.5	47.5	31.1	5.9	6.1
1	98204-8	62.8	48.3	88	1	12.81	1.48	114.7	65.0	11.38	0.63	85.6	25.2	6	3.8	400	64.9	45.2	32.0	5.3	5.9
1	98204-9	63.0	47.6	86	1	13.00	1.50	113.1	65.5	11.75	0.65	84.9	28.8	5	5.6	400	62.0	47.1	32.4	5.4	7.1
1	98204-10	64.9	55.9	96	0	13.27	1.27	120.9	66.2	11.79	0.57	84.9	28.4	4	1.8	400	59.9	46.4	32.5	5.5	6.6
1	98204-11	63.9	47.8	83	0	13.56	1.31	118.6	65.8	12.27	0.61	86.2	22.6	6	0.0	400	61.4	42.3	32.4	6.7	6.1
1	98204-12	62.1	41.3	75	2	13.38	1.54	119.5	65.1	12.43	0.69	85.1	28.4	6	2.5	400	63.0	46.6	32.3	6.3	6.0
1	98204-13	60.8	42.4	77	1	14.00	1.63	116.1	64.9	13.01	0.71	85.0	30.0	7	1.3	400	61.7	51.4	33.1	6.4	5.9
1	98204-14	62.1	52.4	85	1	14.30	1.43	114.2	64.3	12.94	0.66	85.5	29.5	6	3.1	400	61.9	51.3	32.6	5.8	5.5
1	98204-15	62.2	56.5	91	0	14.39	1.44	110.2	66.5	13.45	0.68	85.5	30.8	8	2.5	400	61.7	53.0	30.7	7.4	5.6
2	98205-1	61.6	49.8	91	0	14.88	1.48	115.9	64.5	12.97	0.67	84.4	28.1	4	8.7	400	59.9	45.1	32.1	6.7	5.5
2	98205-2	62.2	48.1	89	1	13.27	1.33	120.2	65.9	11.89	0.59	85.3	26.7	5	3.1	400	61.0	43.6	34.0	5.9	5.8
2	98205-3	63.2	37.5	61	4	13.37	1.44	121.6	66.2	12.23	0.65	84.7	27.3	4	4.3	400	61.6	47.3	33.5	6.1	5.9
2	98205-4	63.1	46.3	81	1	12.35	1.33	114.9	67.1	10.93	0.60	85.8	30.0	4	3.1	400	63.8	52.1	33.1	5.6	5.6
2	98205-5	62.0	48.1	87	1	13.47	1.37	114.1	68.3	11.09	0.53	85.2	27.7	5	2.5	400	62.4	48.4	32.3	6.1	5.7

USDA/ARS Wheat Quality Laboratory, Fargo, ND
Durum Wheat Quality Tests - 1998 Crop
UC Davis, CA

Rep #	Sample ID	TW (lb/bu)	1000 KWT (g)	Sizing		Wheat		NIR hard-ness	Semo ext (%)	Pro 14%	Ash 14%	Semo color		Mix Pat	Specks /10 sq in	Falling number (sec)	Spaghetti color		Cooked weight (g)	Firm (g/cm)	Res (%)
				LG (%)	SM (%)	Pro 14%	Ash 14%					L	b				L	b			
2	98205-6	61.9	49.8	90	0	14.84	1.38	129.4	64.4	13.68	0.63	85.4	30.3	6	2.5	400	63.3	52.4	32.6	7.1	5.6
2	98205-7	62.2	49.8	91	0	15.14	1.46	120.8	63.7	13.64	0.67	84.9	30.8	7	1.3	400	63.1	53.4	31.5	6.8	5.3
2	98205-8	61.2	43.5	76	2	13.22	1.38	119.4	64.9	12.21	0.64	85.3	24.7	7	2.5	400	62.9	45.6	32.5	5.6	6.1
2	98205-9	60.8	43.7	77	1	14.12	1.40	108.5	63.6	13.06	0.64	84.5	28.5	8	0.6	400	60.9	45.5	31.5	6.6	5.5
2	98205-10	63.6	51.3	91	1	14.01	1.25	122.2	68.2	12.64	0.55	84.6	28.3	6	1.3	400	61.4	40.6	33.2	5.9	6.0
2	98205-11	63.1	45.5	72	2	13.77	1.27	115.9	66.3	13.05	0.62	84.9	21.9	7	1.9	400	62.0	46.6	32.2	7.0	5.8
2	98205-12	61.3	39.1	63	2	13.94	1.39	116.1	64.6	13.05	0.62	85.2	28.9	6	1.3	356	61.0	46.4	33.8	5.8	5.6
2	98205-13	61.0	41.2	75	2	14.31	1.55	121.6	64.7	13.30	0.67	84.9	30.3	6	0.0	400	62.4	52.0	32.0	6.7	5.4
2	98205-14	63.3	54.3	83	2	12.63	1.38	116.5	65.0	11.60	0.67	85.2	34.3	7	6.3	400	62.3	56.8	32.8	5.6	6.4
2	98205-15	61.4	51.5	88	1	14.97	1.34	125.9	64.4	13.76	0.66	85.1	32.4	8	1.3	400	62.3	56.4	31.6	6.1	5.9
3	98206-1	64.0	62.1	97	0	14.00	1.67	121.6	67.8	12.53	0.72	84.9	25.1	3	5.6	400	62.4	44.2	32.0	5.4	6.3
3	98206-2	63.4	57.3	94	1	12.30	1.49	116	68.4	10.70	0.65	85.3	24.3	4	1.3	400	63.2	42.5	31.8	4.6	6.2
3	98206-3	64.3	49.8	83	1	13.31	1.54	118.2	66.8	11.98	0.66	84.7	24.9	4	1.3	400	61.1	43.2	33.4	5.3	6.4
3	98206-4	63.5	51.8	85	1	12.27	1.57	118.6	66.4	10.66	0.66	85.3	27.6	5	1.8	400	64.5	47.2	34.3	4.6	7.0
3	98206-5	63.5	49.0	89	1	12.71	1.56	119.1	65.4	11.54	0.66	85.6	25.3	5	3.1	400	62.4	45.5	34.7	4.4	6.8
3	98206-6	62.5	56.5	97	0	14.22	1.64	118.7	66.2	12.80	0.68	85.3	26.6	5	8.7	400	63.1	46.9	30.8	5.8	6.1
3	98206-7	63.5	55.2	93	0	12.35	1.54	113.9	65.8	10.97	0.67	85.8	23.7	7	3.7	400	64.1	44.7	33.2	5.0	6.3
3	98206-8	63.6	52.6	96	0	11.97	1.53	122.1	65.3	10.58	0.66	85.9	23.4	8	1.3	400	63.3	43.5	31.4	4.9	7.3
3	98206-9	63.2	51.0	91	0	12.97	1.61	115.4	66.4	11.78	0.68	84.3	27.5	4	3.7	400	59.6	44.4	32.6	5.0	6.8
3	98206-10	64.9	58.1	95	1	13.00	1.39	123.6	67.5	11.70	0.59	84.7	27.2	4	2.5	400	61.8	44.4	32.8	4.7	6.5
3	98206-11	65.0	56.2	95	0	12.81	1.39	123.5	68.2	11.51	0.60	85.0	20.3	6	3.7	400	62.6	37.8	32.8	4.7	6.6
3	98206-12	63.9	48.8	88	1	12.73	1.52	116.6	66.6	11.68	0.69	85.1	25.4	3	2.5	400	62.1	42.4	32.3	4.5	6.3
3	98206-13	62.7	50.8	87	1	13.46	1.70	111.1	64.8	12.11	0.70	85.4	27.7	5	6.2	400	62.9	49.9	32.7	5.4	6.3
3	98206-14	62.3	53.8	93	1	13.74	1.64	111	64.3	12.29	0.71	84.8	28.0	4	6.2	400	61.6	49.4	32.3	5.6	6.1
3	98206-15	62.5	58.1	96	0	13.74	1.60	117.7	67.4	12.68	0.72	85.5	28.8	6	5.0	400	62.2	51.0	32.8	5.8	6.1

Section XVI

California Durum

– 1999 Crop

LOCATION	PAGE #
Imperial Valley	1, 2

Durum - Imperial Valley, CA - 1999 Crop

ID	TW (lb/bu)	1000 KWT (g)	Sizing		Wheat		Semo		Semo		Mix Pat	Specks /10 sq in)	Spagh color		Cooked weight (g)	Firm- ness (g/cm)	Res (%)
			LG (%)	SM (%)	Pro 12%	Ash 14%	EXT (%)	color	Pro 14%	Ash 14%			L	b			
99207	61.6	61.7	98	2	15.2	1.78	63.9	85	24	13.7	0.70	2	61	41	32.6	5.5	6.2
99207	60.2	59.2	93	1	13.4	1.61	64.6	85	25	12.1	0.65	3	61	40	31.8	6.0	6.1
99207	62.6	52.9	92	1	13.3	1.64	64.0	85	25	12.3	0.67	2	61	43	31.8	5.8	6.5
99207	61.0	51.8	89	1	12.3	1.56	63.6	85	29	10.9	0.62	4	62	49	32.4	5.7	6.5
99207	60.7	53.2	94	0	13.3	1.54	61.5	86	27	12.0	0.63	4	63	48	31.7	5.9	6.2
99207	59.7	54.9	97	0	13.8	1.67	63.3	86	27	12.6	0.60	5	64	49	31.6	5.5	6.3
99207	62.8	52.4	98	0	13.4	1.48	64.0	86	22	12.2	0.56	4	62	40	32.1	5.3	6.6
99207	61.4	52.9	93	0	13.3	1.61	64.9	85	25	12.3	0.65	3	62	43	32.8	5.5	6.6
99207	60.0	51.3	94	0	12.8	1.55	60.8	85	27	11.8	0.60	3	61	45	33.0	5.3	6.3
99207	62.4	61.0	98	1	12.7	1.40	64.2	85	27	11.4	0.55	3	62	46	32.3	5.8	6.5
99207	62.6	55.9	96	0	11.7	1.44	63.8	86	21	10.3	0.57	3	63	40	32.0	5.2	6.4
99207	61.5	46.7	85	0	12.9	1.63	63.8	85	27	11.8	0.61	3	63	48	32.7	5.3	6.5
99207	59.8	46.7	86	1	13.5	1.73	63.7	85	29	12.1	0.61	4	62	51	31.7	6.2	6.4
99207	60.2	56.5	97	0	13.2	1.68	62.6	85	29	12.1	0.64	4	63	51	32.2	6.0	6.4
99207	62.8	55.6	95	1	13	1.63	63.8	85	29	12.1	0.67	4	63	50	32.1	5.5	7.0
99207	63.8	66.2	98	0	12.6	1.71	63.9	85	24	11.4	0.74	2	62	42	32.5	5.2	6.7
99207	65.2	51.5	98	0	12.1	1.45	66.5	86	22	11.1	0.64	3	62	40	32.8	4.8	6.7
99207	63.3	53.5	93	1	12.1	1.63	62.6	85	26	12.4	0.65	4	62	45	31.7	6.1	6.3
99207	64.0	58.5	97	0	12.3	1.42	63.9	85	28	11.5	0.56	4	63	47	32.9	4.9	6.7
99207	62.6	58.8	93	0	11.5	1.58	65.7	85	29	10.5	0.65	4	62	50	32.9	4.6	6.7
99208	60.2	47.4	90	1	14.7	1.79	60.9	85	28	13.6	0.72	3	61	47	31.0	6.3	5.8
99208	60.3	41.5	72	3	12.9	1.69	63.2	85	27	11.4	0.69	4	61	46	31.8	5.6	5.9
99208	61.7	34.0	40	10	13.9	1.77	60.9	85	27	13.2	0.71	4	61	47	32.6	6.2	5.9
99208	57.8	30.2	31	10	14.4	1.92	59.6	85	33	13.8	0.72	4	60	53	31.8	7.0	5.9
99208	57.4	38.2	70	3	14.5	1.75	59.7	85	30	13.7	0.69	5	62	50	31.2	7.0	5.7
99208	60.5	43.5	78	2	13.7	1.62	62.3	86	30	12.9	0.65	4	63	43	31.6	6.5	6.1
99208	62.6	37.6	79	2	14	1.54	59.7	86	24	13.2	0.65	3	63	44	32.7	5.5	6.4
99208	62.7	36.4	72	2	13.8	1.71	60.1	85	26	12.9	0.75	3	58	43	32.1	6.1	7.0
99208	61.2	40.8	79	1	13.1	1.52	63.9	85	29	12.5	0.64	4	66	46	31.6	5.5	7.6
99208	63.8	48.1	81	1	12.6	1.41	62.0	86	28	11.6	0.52	3	64	46	32.5	5.3	7.3

Durum - Imperial Valley, CA - 1999 Crop

ID	TW (lb/bu)	1000 KWT (g)	Sizing		Wheat		Semo		Semo		Semo		Mix Pat	Specks /10 sq in	Spagh color		Cooked weight (g)	Firm- ness (g/cm)	Res (%)
			LG (%)	SM (%)	Pro 12%	Ash 14%	EXT (%)	color	Pro 14%	Ash 14%	L	b							
99208	63.8	44.2	85	1	11.7	1.44	61.1	86	22	11.1	0.52	3	3	64	43	32.9	5.6	6.8	
99208	64.2	41.7	81	1	12.6	1.59	59.5	86	28	11.9	0.65	4	3	65	49	31.8	5.7	6.4	
99208	59.3	40.5	75	2	14.4	1.78	61.0	85	31	13.5	0.73	6	4	63	53	32.2	6.8	6.3	
99208	61.0	42.4	87	1	13.9	1.74	60.6	85	31	12.6	0.70	5	6	64	55	32.7	6.1	7.2	
99208	59.1	44.8	84	1	13.7	1.67	62.6	85	32	12.9	0.68	5	14	64	57	32.0	6.6	5.9	
99208	62.2	50.3	87	1	13.3	1.70	60.9	85	28	12.5	0.68	2	14	63	49	32.0	6.0	6.7	
99208	63.0	40.5	82	1	12.8	1.47	64.6	84	23	11.9	0.62	2	7	63	46	32.5	5.7	6.2	
99208	61.3	42.9	82	1	13.7	1.66	60.4	84	28	12.9	0.67	3	6	63	50	31.9	5.9	6.2	
99208	64.2	52.4	94	0	12.5	1.50	62.5	84	27	11.8	0.57	2	5	64	48	32.8	5.2	7.8	
99208	62.4	49.5	90	0	12.6	1.61	60.6	84	30	11.6	0.68	3	2	65	55	31.9	5.4	6.3	
99209	61.3	47.6	85	1	13.3	1.72	60.9	84	28	12.4	0.73	2	9	63	50	31.0	6.5	6.1	
99209	59.2	43.7	73	2	13.4	1.63	62.8	84	28	12.2	0.70	4	2	63	48	32.4	5.9	6.8	
99209	61.8	42.9	62	4	13.5	1.65	61.6	84	27	12.8	0.70	4	11	62	48	33.0	6.4	6.8	
99209	60.3	41.2	64	3	12.9	1.71	61.2	84	31	12.2	0.69	5	4	64	55	31.9	5.9	6.4	
99209	60.2	45.0	78	2	13.8	1.65	60.5	85	29	13.2	0.67	6	4	64	52	32.1	6.5	6.0	
99209	60.6	45.7	78	3	14.2	1.64	59.6	85	30	13.3	0.68	6	3	64	54	31.2	6.3	6.1	
99209	63.2	42.0	76	2	14.2	1.51	59.4	84	23	13.3	0.63	5	1	64	45	31.1	6.4	6.2	
99209	63.2	44.6	78	2	13.6	1.65	64.0	84	27	13.1	0.70	3	5	62	48	31.4	6.4	6.2	
99209	62.8	48.1	78	1	13.0	1.54	62.2	84	30	12.5	0.64	3	4	63	50	32.4	5.5	6.8	
99209	64.3	53.2	91	1	10.8	1.39	63.0	85	28	10.4	0.55	2	4	64	50	32.4	4.9	6.7	
99209	64.2	46.1	87	1	10.2	1.42	62.7	85	23	9.8	0.59	2	8	64	43	31.6	5.1	6.8	
99209	62.4	45.2	76	3	13.3	1.62	61.6	84	29	12.3	0.62	3	4	64	50	33.4	4.9	6.5	
99209	61.4	43.9	75	3	14.1	1.79	60.1	84	31	13.3	0.69	4	5	63	54	31.3	6.3	5.9	
99209	59.8	49.8	85	2	14.4	1.70	60.6	84	32	13.4	0.70	5	9	63	56	32.4	6.1	6.2	
99209	60.9	46.9	87	1	14.3	1.56	63.2	84	32	13.4	0.70	5	4	64	57	32.6	7.1	5.8	
99209	61.9	43.7	83	2	13.5	1.65	61.8	83	28	12.8	0.70	2	6	63	49	31.8	6.7	6.0	
99209	64.3	45.2	83	0	13.7	1.47	61.3	85	23	12.8	0.61	2	4	64	44	31.8	6.2	6.0	
99209	62.6	48.1	84	1	13.6	1.54	61.5	85	28	12.9	0.65	3	7	63	49	32.2	6.5	6.3	
99209	64.1	49.5	92	0	12.6	1.40	62.9	84	29	12.0	0.56	3	6	63	48	32.4	5.8	6.3	
99209	61.8	51.0	90	0	10.2	1.55	61.8	84	32	9.7	0.66	3	4	65	55	33.7	4.8	6.7	

Section XVII

Montana Durum

– 1998 Crop

LOCATION

PAGE #

Montana

1

1998 Durum Wheat Quality - Montana

ID #	Cultivar	TW (lb/bu)	KWT (mg)	Sizing		Wheat protein (12% mb)	SKCS HI	Semo ext (%)	Semo color		Mix Pat
				LG (%)	SM (%)				L	b	
1101	Renville	62.4	43.4	80	2	15.4	83.8	63.5	82.9	28.4	3
1102	Munich	61.8	36.8	72	2	15.9	93.5	63.3	83.7	29.8	4
1103	Cortez	59.9	40.2	73	2	15.3	85.8	60.8	83.3	27.6	2
1201	Cortez	59.9	37.1	72	2	15.2	92.4	61.4	82.5	27.6	5
1202	Renville	62.6	43.8	81	1	15.5	85.0	63.5	84.1	28.2	5
1204	Munich	62.4	40.1	71	2	15.2	89.5	63.0	84.1	29.7	3
1301	Munich	61.6	40.5	71	2	15.9	86.1	63.5	84.0	29.4	3
1304	Renville	62.2	40.7	76	4	15.0	86.4	62.8	84.5	26.4	4
1305	Cortez	60.2	37.6	63	4	15.2	90.1	60.4	82.7	27.0	5
2101	Renville	62.2	36.3	46	7	12.5	83.5	64.9	84.5	29.2	2
2102	Munich	59.7	33.3	40	8	12.7	82.9	61.4	84.2	30.4	2
2103	Cortez	57.5	30.6	23	10	12.3	85.5	60.2	83.7	27.5	3
2201	Cortez	58.2	31.7	22	4	12.1	90.0	59.7	83.4	28.9	5
2202	Renville	62.2	38.9	51	6	12.1	83.0	65.9	84.6	29.8	2
2204	Munich	59.6	34.7	40	4	12.6	83.5	62.6	84.1	30.6	2
2301	Munich	59.8	37.5	43	4	15.9	84.1	58.7	84.0	30.8	3
2304	Renville	60.3	37.5	48	11	12.8	83.9	64.9	84.3	28.9	3
2305	Cortez	56.6	30.5	18	11	12.4	90.3	58.4	83.0	28.8	4
3101	Renville	60.1	36.8	31	3	17.4	84.2	61.6	83.9	30.0	5
3102	Munich	60.2	37.5	51	3	16.2	85.5	59.3	83.8	30.5	4
3103	Cortez	59.4	37.5	65	3	15.8	86.7	58.7	83.2	28.3	5
3201	Cortez	59.7	35.1	64	6	15.7	88.7	58.4	82.6	28.1	5
3202	Renville	60.2	37.4	30	9	17.5	83.2	61.1	84.1	29.9	5
3204	Munich	57.7	32.7	19	6	18.8	79.8	55.9	83.7	30.7	5
3301	Munich	59.5	37.0	41	4	16.1	84.4	61.0	84.1	30.1	4
3304	Renville	60.6	38.6	42	4	16.5	88.1	61.4	84.2	30.0	5
3305	Cortez	58.8	35.6	62	1	15.8	87.2	60.0	83.3	27.8	5
4101	Renville	60.1	44.2	86	4	13.0	71.8	62.5	86.2	25.1	3
4102	Munich	60.4	41.5	72	1	13.3	71.7	61.7	85.7	27.7	3
4103	Cortez	58.8	41.1	83	1	13.8	73.4	60.1	84.0	26.5	4
4201	Cortez	58.9	40.4	82	1	13.7	74.4	59.8	84.2	26.5	4
4202	Renville	60.9	44.3	87	2	12.7	66.1	61.4	86.0	25.5	3
4204	Munich	60.2	37.9	78	2	13.2	73.2	61.7	85.2	28.2	3
4301	Munich	60.5	42.2	80	1	13.4	70.2	54.7	86.0	26.1	2
4304	Renville	60.6	45.0	86	1	12.9	71.2	62.9	85.8	25.6	3
4305	Cortez	60.1	39.3	82	2	13.6	72.4	59.3	84.4	26.2	3
5101	Renville	60.5	38.9	67	3	14.9	74.2	43.3	86.1	26.1	2
5102	Munich	60.3	37.5	59	2	13.5	77.2	57.2	85.2	29.0	2
5103	Cortez	59.2	40.8	86	2	15.7	77.0	55.9	84.5	25.0	4
5201	Cortez	59.8	39.7	82	2	15.8	77.9	51.6	84.7	25.4	4
5202	Renville	60.8	39.6	66	2	14.4	75.3	57.1	85.2	28.0	2
5204	Munich	59.9	36.7	58	2	13.6	77.7	57.5	85.3	28.4	2
5301	Munich	59.3	33.6	36	6	17.4	80.5	55.8	84.5	29.5	4
5304	Renville	60.9	40.2	67	2	15.1	72.5	56.1	85.3	27.8	2
5305	Cortez	59.8	41.7	84	2	15.6	74.4	54.2	84.6	25.5	3

Section XVIII

Oregon Durum

— 1999 Crop

LOCATION

PAGE #

Oregon

1, 2

Durum Quality - Oregon - 1999 Crop

ID	TW (lb/bu)	1000 KWT (g)	Sizing		Wheat		Semo		Semo		Mix Pat	Specks /10 sq in	Spagh color		Cooked weight (g)	Firm- ness (g/cm)	Res (%)
			LG (%)	SM (%)	Pro 12%	Ash 14%	EXT (%)	L	b	Pro 14%	Ash 14%		L	b			
1	64.9	66.7	99	0	12.9	1.28	63.8	84	26	11.1	0.58	4	63	45	32.3	5.5	6.8
2	64.5	64.9	99	0	11.6	1.33	62.3	84	26	9.9	0.62	3	64	43	33.2	4.8	7.0
3	65.7	61.7	97	0	11.6	1.34	63.6	84	25	10.1	0.60	3	63	43	32.9	5.1	7.5
4	64.9	63.3	99	0	12.3	1.25	63.9	84	26	10.5	0.60	3	64	42	31.7	4.8	6.9
5	65.4	62.5	98	0	12.2	1.26	64.3	84	26	9.8	0.59	3	64	44	32.5	4.7	7.4
6	65.6	61.7	98	0	10.1	1.39	62.1	84	24	8.6	0.63	3	65	42	33.5	4.1	7.7
7	65.8	60.2	98	0	11.9	1.27	65.4	85	26	10.2	0.61	3	64	44	32.5	4.9	7.0
8	65.7	62.1	97	0	12.5	1.30	62.4	84	26	10.8	0.59	3	63	43	32.8	5.3	6.5
9	66.6	61.7	99	0	11.0	1.36	59.4	84	25	9.6	0.61	3	NA	NA	NA	NA	NA
10	66.4	64.5	99	0	11.9	1.35	64.1	84	26	10.1	0.63	3	64	43	32.9	4.5	7.6
11	66.8	65.3	99	0	10.9	1.43	65.2	84	25	9.5	0.64	5	64	41	32.4	4.5	6.6
12	66.4	65.8	99	0	10.8	1.46	64.9	84	25	9.0	0.00	5	62	39	32.9	4.3	8.2
13	66.6	62.9	100	0	9.7	1.47	63.7	85	25	8.3	0.64	3	66	42	33.1	4.2	8.4
14	65.2	66.7	99	0	12.9	1.38	64.0	84	26	11.1	0.62	4	63	42	32.7	4.9	7.5
15	64.9	67.3	98	0	12.8	1.37	64.6	84	25	11.1	0.61	4	62	42	31.5	5.6	6.7
16	65.9	65.8	99	0	12.3	1.42	64.2	84	26	10.2	0.63	4	NA	NA	NA	NA	NA
17	65.4	65.8	99	0	12.2	1.43	63.8	84	26	10.3	0.64	4	63	44	33.4	4.6	7.8
18	65.0	67.3	99	0	12.8	1.37	64.7	84	26	11.2	0.62	4	63	43	32.0	5.0	6.6
19	66.6	66.2	99	0	10.8	1.43	65.6	84	26	9.5	0.64	3	63	43	33.8	3.9	7.8
20	66.7	68.0	100	0	11.2	1.49	63.7	84	25	9.6	0.66	3	64	42	31.8	4.7	7.4
21	65.9	62.1	99	0	12.1	1.28	64.1	84	26	10.9	0.61	4	61	41	31.9	4.9	7.2
22	66.2	64.9	98	0	10.5	1.45	63.0	85	25	9.1	0.63	3	64	42	32.5	4.3	8.1
23	66.4	65.8	100	0	11.8	1.43	64.4	84	26	10.2	0.61	4	64	43	33.1	4.6	8.0
24	65.8	62.1	100	0	10.1	1.53	61.3	85	24	8.7	0.66	3	65	41	32.9	3.9	9.0
25	65.8	63.3	97	2	11.9	1.45	64.2	84	25	10.3	0.63	3	64	43	32.5	4.7	7.9
26	66.0	63.3	100	0	10.6	1.46	65.1	84	25	9.5	0.66	3	64	43	32.3	4.2	8.4
27	65.0	62.5	99	0	11.4	1.57	63.0	84	24	9.3	0.66	3	64	42	32.6	4.1	8.3
28	66.0	62.1	98	0	11.1	1.42	64.8	84	25	9.2	0.64	3	64	44	33.3	4.2	8.7
29	64.6	63.7	99	0	12.4	1.39	63.6	84	26	10.6	0.62	3	63	44	32.5	4.8	8.0
30	65.3	68.9	98	0	12.9	1.35	64.2	82	25	11.5	0.63	4	63	41	32.5	5.5	6.9
31	65.6	62.9	99	0	11.3	1.42	62.6	84	25	9.5	0.64	3	64	43	33.4	4.7	7.8
32	65.6	62.5	99	0	10.5	1.60	60.6	85	24	9.1	0.66	3	64	42	32.9	4.4	8.0
33	66.7	63.3	99	0	10.7	1.46	65.0	84	26	9.1	0.65	3	64	43	33.2	4.4	8.4
34	65.8	65.8	99	0	12.8	1.34	65.0	84	26	11.0	0.62	4	62	41	32.2	4.9	7.5
35	65.3	64.5	99	0	12.7	1.34	64.3	84	25	11.1	0.63	4	62	44	32.5	5.0	7.5
36	65.5	62.9	98	0	12.5	1.29	64.2	83	25	10.9	0.60	4	63	42	33.0	5.2	7.6
37	65.6	62.1	99	0	10.9	1.41	62.8	85	26	9.5	0.67	3	63	40	33.5	4.4	8.5
38	65.7	65.4	99	0	10.0	1.48	63.2	86	25	8.8	0.64	2	65	43	32.5	4.3	8.8

Durum Quality - Oregon - 1999 Crop

ID	TW (lb/bu)	1000 KWT (g)	Sizing		Wheat		Semo		Semo		Mix Pat	Specs /10 sq in	Spagh color		Cooked weight (g)	Firm- ness (g/cm)	Res (%)
			LG (%)	SM (%)	Pro 12%	Ash 14%	EXT (%)	color L b	Pro 14%	Ash 14%			L	b			
39	66.5	65.4	99	0	12.0	1.42	63.3	85	26	10.2	0.63	3	64	44	33.0	4.8	8.2
40	65.8	67.1	99	0	11.4	1.47	62.8	85	26	9.7	0.65	3	62	41	32.8	4.6	8.1
41	65.8	66.7	99	0	11.0	1.52	63.0	85	26	9.1	0.65	3	63	42	33.5	4.7	8.3
42	65.7	64.9	99	0	12.9	1.34	63.4	85	26	11.1	0.63	5	62	43	32.4	5.1	7.3
43	66.0	61.7	99	0	11.7	1.36	64.3	85	27	10.4	0.63	3	62	43	33.5	4.6	7.9
44	65.7	65.8	99	0	9.8	1.54	54.0	85	24	8.5	0.65	2	64	42	33.5	4.2	8.6
45	66.2	63.3	99	0	11.1	1.39	64.9	85	26	9.7	0.62	3	64	44	35.0	4.3	8.6
46	67.0	65.5	99	0	12.0	1.42	62.9	84	26	10.2	0.62	4	63	42	32.6	4.9	8.0
47	65.9	62.1	98	0	12.5	1.32	62.2	85	26	10.9	0.60	5	62	43	32.6	5.3	6.9
48	66.2	65.8	98	0	11.0	1.47	61.3	85	25	8.7	0.63	4	63	42	32.7	4.8	7.7
49	65.8	61.3	99	0	12.4	1.31	63.6	85	26	10.9	0.62	4	62	43	31.7	5.6	6.7
50	66.3	62.5	98	0	11.2	1.41	62.4	84	25	9.8	0.65	3	63	43	32.8	4.8	9.5
51	66.2	66.7	99	0	12.4	1.42	67.5	85	26	10.8	0.64	3	62	43	34.6	4.6	8.6
52	65.9	64.9	98	0	10.2	1.52	62.5	85	25	8.8	0.70	2	64	43	34.6	4.1	8.8
53	65.6	68.0	99	0	11.7	1.55	65.0	85	25	10.2	0.65	3	63	42	32.3	5.2	7.6
54	65.9	64.5	99	0	11.9	1.38	63.7	85	26	10.4	0.63	3	64	42	30.1	5.0	7.6
55	65.8	68.9	99	0	11.9	1.40	64.4	85	26	10.2	0.63	3	64	42	32.9	5.0	7.2
56	65.9	67.5	98	0	10.9	1.36	63.3	85	26	9.5	0.65	2	64	43	33.5	4.6	7.6
57	65.8	66.7	99	0	11.5	1.59	62.4	85	25	9.9	0.66	4	62	41	32.5	4.5	7.9
58	66.4	61.7	99	0	10.9	1.39	64.1	85	27	9.5	0.63	3	63	42	33.0	4.4	8.2
59	66.1	64.5	99	0	11.4	1.56	62.6	85	25	9.8	0.66	3	63	42	32.0	4.4	7.3
60	66.1	63.7	98	0	12.4	1.28	63.8	85	26	11.0	0.61	3	62	43	31.7	5.2	7.6
61	65.8	65.4	99	0	11.2	1.58	63.2	85	24	9.5	0.67	3	63	40	31.8	4.4	7.7
62	65.3	68.5	99	0	10.8	1.63	60.8	85	24	9.7	0.67	3	63	40	33.2	4.4	8.0
63	65.8	66.7	100	0	12.1	1.61	63.0	84	24	10.6	0.69	3	63	39	32.6	4.5	7.4
64	66.3	65.4	99	0	11.3	1.46	63.8	84	26	9.5	0.66	3	63	42	31.7	4.6	7.3
65	65.9	64.9	99	0	11.1	1.52	64.5	85	26	9.3	0.66	3	64	44	31.9	4.4	7.9
66	66.0	64.5	99	0	11.9	1.44	65.3	84	26	9.8	0.67	3	63	42	32.6	4.8	7.8
67	65.9	64.5	98	0	11.0	1.41	64.6	85	26	9.3	0.65	3	63	43	33.4	4.6	8.1
68	64.4	68.5	99	0	12.7	1.39	65.4	85	26	11.0	0.65	5	62	43	33.3	5.2	7.4
69	64.8	67.1	99	0	12.7	1.32	64.3	84	26	11.1	0.61	5	61	41	31.7	5.1	7.2
70	65.5	64.9	98	0	10.7	1.46	64.8	85	26	9.4	0.66	3	62	42	33.4	4.8	8.3
71	65.7	64.1	99	0	11.7	1.42	64.7	85	26	10.1	0.64	5	63	43	33.2	4.8	7.5
72	65.4	62.9	99	0	11.7	1.37	63.9	85	26	10.1	0.63	3	62	42	33.2	4.8	7.8
73	65.5	65.4	98	0	10.8	1.40	66.8	85	27	9.3	0.63	3	63	43	33.4	4.3	8.1
74	65.4	65.8	99	0	10.3	1.47	64.7	85	26	8.8	0.65	3	63	41	32.6	4.5	8.4
75	65.3	65.4	99	0	10.7	1.51	63.8	85	25	9.0	0.66	3	63	42	32.4	3.9	8.6
76	65.4	64.1	98	0	12.3	1.36	64.1	84	26	10.6	0.62	3	63	44	33.3	4.9	8.0

Section XIX

Virginia Durum

— 1998, 1999 Crop

LOCATION	PAGE #
Blacksburg	1
Warsaw	2
Orange	3

Durum Quality - Virginia - 1998-1999 Crop

Blacksburg

CULTIVAR ID	TW (lb/bu)	1000 KWT (g)	Sizing		Wheat		Semo		Semo		Specks /10 sq in)	Spagh color		Cooked weight (g)	Firm- ness (g/cm)	Res (%)
			LG (%)	SM (%)	Pro 12%	Ash 14%	Semo EXT (%)	color	Pro 14%	Ash 14%		L	b			
BASA	63.0	50.0	90	0	12.4	1.10	68.9	85	23	11.0	0.67	61	37	32.6	5.5	6.3
PANONDUR	64.7	47.6	86	1	12.4	1.54	65.6	85	23	10.9	0.60	61	35	33.3	4.6	6.7
BZ8W91-8	61.0	41.3	85	1	10.2	1.66	60.5	85	26	9.1	0.62	61	44	34.7	4.0	6.7
OR3880152	64.3	46.9	91	0	11.4	1.54	62.9	85	24	10.0	0.64	62	37	34.4	4.3	7.0
OR3910084	59.8	50.0	92	0	12.7	1.70	64.3	85	27	11.0	0.73	61	43	34.5	4.2	7.0
OR3910214	62.6	50.5	90	0	12.3	1.55	66.0	85	22	10.9	0.67	61	40	34.3	4.6	7.0
ODESSA#63	60.8	49.0	92	1	10.9	1.55	62.3	86	19	9.5	0.69	61	36	35.9	3.2	7.5
ODESSA#65	63.4	44.6	83	1	10.9	1.56	64.8	85	24	9.6	0.66	62	42	34.3	3.7	7.0
ODESSA#66	62.0	49.8	94	0	11.2	1.65	64.7	84	27	11.8	0.72	59	44	34.5	4.0	7.1
ODESSA#69	63.8	45.2	89	0	10.8	1.54	65.2	85	24	9.6	0.69	61	42	34.7	3.6	7.3
AGEDUR	62.6	41.7	81	2	12.1	1.56	63.0	84	25	11.2	0.61	61	44	33.7	4.1	6.6
ACADUR	60.6	45.5	87	1	10.8	1.62	61.4	85	28	9.5	0.65	61	45	34.8	3.7	7.0
ALIDUR	63.4	50.3	93	1	12.8	1.60	65.1	85	24	11.2	0.66	61	37	33.1	4.5	6.8
AMADUR	60.6	46.7	86	1	12.0	1.59	63.4	85	25	10.6	0.64	63	40	32.6	4.4	7.2
RUDUR	64.8	51.3	94	0	12.8	1.60	63.8	85	22	11.3	0.60	61	38	33.4	4.1	6.8
OR948612	61.6	41.3	77	2	11.4	1.76	63.2	84	27	9.9	0.72	61	43	33.6	4.8	6.4
OR948763	63.1	43.9	87	1	11.3	1.66	62.7	85	28	10.1	0.63	62	44	34.0	4.3	7.4
OREEXP#12	61.9	44.6	95	0	12.5	1.63	61.0	85	28	10.9	0.70	62	46	32.3	5.2	6.3
OREEXP#13	62.9	45.2	95	1	12.3	1.66	66.0	86	26	10.6	0.65	63	48	32.9	4.3	6.5

USDA/ARS Wheat Quality Laboratory, Fargo, ND

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Durum Quality - Virginia - 1998-1999 Crop

Warsaw

CULTIVAR ID	TW (lb/bu)	1000 KWT (g)	Sizing		Wheat		Semo		Semo		Specks /10 sq in)	Spagh color		Cooked weight (g)	Firm- ness (g/cm)	Res (%)
			LG (%)	SM (%)	Pro 12%	Ash 14%	EXT (%)	color L b	Pro 14%	Ash 14%		L	b			
BASA	58.0	37.2	42	5	14.4	1.34	59.8	84	25	13.2	0.60	61	43	34.3	5.1	6.2
PANONDUR	63.0	37.3	75	1	13.7	1.42	59.9	84	23	13.2	0.61	61	39	33.6	4.5	6.8
BZ8W91-8	58.8	32.3	44	4	13.2	1.26	55.5	84	30	12.3	0.57	59	47	32.4	5.1	6.2
OR3880152	61.0	39.7	78	2	14.3	1.31	60.2	85	24	13.4	0.56	61	40	34.0	4.8	6.1
OR3910084	56.9	38.9	62	1	13.9	1.33	59.4	85	29	12.8	0.64	61	48	34.7	4.3	5.9
OR3910214	59.3	41.8	79	1	13.7	1.34	61.1	84	23	11.1	0.61	59	40	33.1	5.4	6.4
ODESSA#63	57.8	37.9	74	2	12.9	1.33	63.5	85	21	11.7	0.57	61	39	34.9	4.2	7.4
ODESSA#65	59.1	38.5	66	2	13.1	1.21	63.5	84	25	12.2	0.57	60	42	34.9	3.4	7.4
ODESSA#66	61.4	41.5	74	0	13.9	1.33	64.8	84	28	13.0	0.60	60	45	32.8	4.5	6.3
ODESSA#69	59.4	37.6	61	2	13.4	1.25	62.7	84	25	12.5	0.59	60	42	33.1	3.5	7.0
AGEDUR	56.7	37.7	72	3	14.2	1.28	59.8	83	25	13.3	0.54	59	40	34.3	4.0	8.0
ACADUR	58.4	37.0	63	1	13.7	1.31	62.9	84	30	12.3	0.58	60	45	33.4	4.9	6.5
ALIDUR	60.8	37.9	72	2	13.4	1.25	62.1	84	25	13.3	0.54	61	40	32.4	5.2	6.5
AMADUR	55.3	37.9	62	3	13.3	1.25	60.2	85	25	12.5	0.54	61	41	31.5	5.5	6.1
RUDUR	62.9	39.7	75	3	13.8	1.39	61.5	84	23	13.4	0.57	59	39	30.9	4.8	7.5
OR948612	56.1	30.5	46	5	14.5	1.41	61.0	82	26	13.6	0.62	58	42	32.6	5.7	6.3
OR948763	60.6	34.7	63	3	13.3	1.35	62.7	84	28	12.5	0.58	60	46	33.5	5.2	6.4
OREEXP#12	61.0	35.5	68	2	14.1	1.36	63.9	84	30	13.0	0.64	62	51	32.2	6.2	5.9
OREEXP#13	59.7	35.3	64	3	13.6	1.35	63.3	85	28	12.9	0.61	61	49	31.5	5.9	5.8

Durum Quality - Virginia - 1998-1999 Crop

Orange

CULTIVAR ID	TW (lb/bu)	1000 KWT (g)	Sizing		Wheat		Semo		Semo		Mix Pat	Specks /10 sq in)	Spagh color		Cooked weight (g)	Firm- ness (g/cm)	Res (%)
			LG (%)	SM (%)	Pro 12%	Ash 14%	EXT (%)	color	Pro 14%	Ash 14%			L	b			
BASA	60.3	41.3	71	1	14.5	1.19	58.8	85	24	13.3	0.55	3	61	42	31.4	5.8	5.8
PANONDUR	63.2	40.5	76	1	14.1	1.26	63.4	84	23	13.4	0.57	2	61	38	32.9	5.0	6.4
BZ8W91-8	60.6	37.0	71	1	13.3	1.19	63.1	84	30	12.3	0.54	3	60	47	35.0	4.6	6.1
OR3880152	60.9	43.3	71	2	14.9	1.27	59.4	85	25	13.8	0.59	3	60	39	33.7	5.0	5.9
OR3910084	59.1	44.6	82	0	15.0	1.29	61.0	85	28	13.9	0.63	1	62	47	32.8	5.3	6.3
OR3910214	61.1	43.7	81	0	14.2	1.18	66.0	84	23	13.1	0.58	3	60	42	31.8	5.8	6.2
ODESSA#63	61.4	41.8	76	1	13.3	1.17	65.6	84	21	12.2	0.57	2	62	40	34.2	4.6	7.1
ODESSA#65	62.4	41.3	73	1	13.7	1.12	65.0	84	25	12.5	0.54	1	61	43	32.8	4.2	6.7
ODESSA#66	63.1	44.4	87	0	14.5	1.22	64.6	84	28	13.3	0.62	4	60	46	33.9	4.4	6.7
ODESSA#69	62.2	41.2	70	1	13.8	1.11	65.1	84	25	12.8	0.55	3	60	43	34.1	3.8	6.8
AGEDUR	61.2	39.8	72	2	14.7	1.22	56.5	84	25	14.2	0.56	2	62	42	29.9	6.2	6.3
ACADUR	60.5	42.0	74	2	13.9	1.27	65.4	84	30	12.7	0.58	3	61	46	32.7	4.7	6.0
ALIDUR	63.1	46.5	87	0	14.9	1.21	63.9	84	25	13.9	0.55	4	61	40	31.9	4.7	5.8
AMADUR	59.3	42.9	87	0	13.7	1.15	64.5	85	26	13.0	0.54	3	61	41	32.4	4.5	6.1
RUDUR	62.0	41.3	82	1	13.7	1.25	60.4	84	23	13.1	0.55	3	61	39	30.5	4.7	6.8
OR948612	58.8	34.2	53	4	13.6	1.29	63.3	84	28	12.7	0.62	4	60	45	31.1	5.1	6.0
OR948763	58.8	40.8	80	1	13.5	1.23	65.9	84	28	12.2	0.55	3	61	44	33.3	4.6	6.6
OREEXP#12	61.6	38.9	84	1	14.5	1.18	64.3	85	29	13.5	0.58	4	62	50	32.5	5.2	6.3
OREEXP#13	61.4	38.9	81	1	14.2	1.21	62.8	85	27	13.5	0.57	4	62	50	32.1	5.4	6.1

Section XX

Williston, ND Durum

– 1998 Crop

LOCATION	PAGE #
Arnegard	1
WREC Fallow	1
Fortuna	2
WREC Recrop	2

Williston, ND Durum Specials - 1998 Crop

LOCATION: ARNEGARD

CULTIVAR	Plot #	TW (lb/bu)	1000 KWT (g)	Sizing lg (%)	sm (%)	Wheat pro (%)	ash 14% mb	NIR HI	Falling number (sec)	Semo ext (%)	Semo Color L	b	Mix Pat	Specks /10 sq in	Semo Pro 14% mb	Ash 14% mb	Spagh Color L	b	Cooked Weight (g)	Firm (g/cm)	Res (%)
Munich	101	62.8	40.3	72	1	10.1	1.46	126.6	346	64.3	87	33	2	1	9.5	0.59	66	53	34.6	4.7	6.7
Renville	102	61.5	39.4	66	1	9.8	1.47	114.0	342	62.4	87	30	2	1	9.2	0.56	66	50	33.1	4.8	6.2
Cortez	103	61.2	37.9	74	2	11.6	1.74	119.4	376	64.1	85	32	3	4	11.0	0.70	63	52	32.3	5.9	5.9
Renville	202	61.7	38.6	76	2	10.6	1.34	123.3	356	64.4	86	31	2	1	10.0	0.55	66	52	31.9	5.1	5.8
Munich	203	62.4	36.2	52	2	10.9	1.41	124.5	348	64.3	86	35	2	1	10.2	0.56	64	54	34.1	5.4	5.8
Cortez	205	60.7	39.7	74	1	12.1	1.52	107.5	400	64.0	85	32	4	1	11.5	0.60	64	52	32.4	6.4	5.4
Munich	301	62.5	38.2	63	2	11.1	1.35	126.1	345	66.0	85	34	2	2	10.5	0.56	65	55	31.9	5.2	6.0
Renville	302	61.5	39.2	65	2	10.9	1.30	122.5	378	63.0	86	30	2	1	10.3	0.55	66	51	32.9	5.3	5.9
Cortez	304	61.0	40.8	76	1	12.3	1.58	116.5	400	63.0	85	31	4	2	11.6	0.60	63	53	33.2	5.9	6.2

LOCATION: WREC FALLOW

CULTIVAR	Plot #	TW (lb/bu)	1000 KWT (g)	Sizing lg (%)	sm (%)	Wheat pro (%)	ash 14% mb	NIR HI	Falling number (sec)	Semo ext (%)	Semo Color L	b	Mix Pat	Specks /10 sq in	Semo Pro 14% mb	Ash 14% mb	Spagh Color L	b	Cooked Weight (g)	Firm (g/cm)	Res (%)
Munich	101	54.5	27.2	11	16	17.8	1.89	128.0	363	59.4	85	35	4	1	17.6	0.71	62	55	31.8	10.0	5.2
Renville	102	55.8	25.9	3	24	17.1	1.72	136.1	383	59.4	85	32	4	0	16.8	0.63	61	52	31.4	9.1	4.9
Cortez	103	53.8	25.6	12	11	17.1	1.90	118.9	400	61.8	84	34	6	1	16.6	0.72	59	52	30.6	10.1	4.7
Renville	202	55.1	26.5	2	12	17.6	1.82	130.2	366	57.0	85	32	5	1	17.4	0.66	62	52	31.1	9.8	5.0
Munich	203	54.4	25.2	6	19	17.4	1.86	125.9	347	58.4	84	36	4	0	17.5	0.70	61	54	28.8	10.4	4.5
Cortez	205	54.6	27.5	6	11	16.9	1.92	123.7	400	57.4	84	34	6	0	16.5	0.70	61	53	29.6	10.9	4.9
Munich	301	55.1	26.2	11	14	17.0	1.75	134.3	396	57.8	84	35	4	1	16.8	0.70	62	55	31.2	9.6	4.9
Renville	302	55.7	26.5	2	24	17.6	1.78	135.3	374	58.5	85	32	5	0	17.3	0.65	62	52	30.6	9.4	5.0
Cortez	304	54.7	27.0	15	10	17.0	1.87	126.2	400	60.4	84	34	7	1	16.4	0.69	61	53	30.5	10.2	4.7

USDA/ARS Wheat Quality Laboratory - Fargo, ND

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Williston, ND Durum Specials - 1998 Crop

LOCATION: FORTUNA

CULTIVAR	Plot #	TW (lb/bu)	1000 KWT (g)	Sizing		Wheat		Falling number (sec)	Semo ext (%)	Semo Color		Mix Pat	Specs /10 sq in	Semo Pro Ash 14% mb		Spagh Color		Cooked Weight (g)	Firm (g/cm)	Res (%)
				lg (%)	sm (%)	pro 14% mb	NIR HI			L	b			14% mb	mb	L	b			
Munich	101	61.6	42.9	80	2	13.2	170	399	62.2	86	33	2	2	12.8	0.63	64	54	31.8	7.0	5.7
Renville	102	61.5	39.1	60	3	13.2	162	400	64.3	86	30	4	0	12.6	0.62	65	52	30.7	7.3	5.7
Cortez	103	60.4	39.4	70	2	13.2	189	400	61.2	85	32	5	3	12.8	0.68	64	52	31.6	6.6	5.4
Renville	202	62.2	42.4	69	2	11.6	157	400	61.1	86	31	3	3	10.9	0.59	65	54	32.8	5.3	6.1
Munich	203	61.8	40.8	74	1	11.4	163	367	63.8	86	34	2	1	10.9	0.63	65	56	32.3	5.1	6.5
Cortez	205	61.5	39.5	56	2	12.0	175	400	63.3	85	33	3	3	11.2	0.66	64	55	31.6	5.8	6.2
Munich	301	61.7	39.5	71	2	11.0	162	380	62.6	86	34	2	3	10.5	0.62	65	57	33.4	5.0	6.9
Renville	302	62.3	40.7	71	2	10.6	152	389	61.6	87	30	3	1	9.9	0.59	65	54	31.6	5.2	6.7
Cortez	304	62.0	39.2	77	2	10.8	167	400	64.2	85	33	3	1	10.4	0.63	64	53	30.8	5.2	6.6

LOCATION: WREC RECROP

CULTIVAR	Plot #	TW (lb/bu)	1000 KWT (g)	Sizing		Wheat		Falling number (sec)	Semo ext (%)	Semo Color		Mix Pat	Specs /10 sq in	Semo Pro Ash 14% mb		Spagh Color		Cooked Weight (g)	Firm (g/cm)	Res (%)
				lg (%)	sm (%)	pro 14% mb	NIR HI			L	b			14% mb	mb	L	b			
Munich	101	54.1	26.8	9	17	17.1	215	359	59.2	84	36	4	3	16.8	0.77	62	55	29.8	10.0	5.8
Renville	102	54.8	25.4	3	25	16.9	213	342	59.9	85	33	5	3	17.0	0.79	62	53	29.3	9.9	5.0
Cortez	103	52.9	24.8	11	16	16.7	231	376	57.4	84	34	6	1	16.5	0.83	60	53	30.4	8.5	5.4
Renville	202	53.9	24.2	2	34	18.1	221	327	58.5	84	33	5	1	18.1	0.83	61	51	29.6	11.1	5.2
Munich	203	51.7	23.0	5	24	18.9	236	301	57.9	84	36	4	1	18.7	0.88	59	51	28.9	10.8	5.3
Cortez	205	52.1	23.9	4	14	18.0	239	335	57.3	84	34	6	1	17.5	0.87	60	52	30.2	10.7	5.2
Munich	301	52.2	24.2	6	21	18.5	236	311	56.7	84	36	4	1	18.7	0.88	59	52	29.6	11.2	5.2
Renville	302	53.3	23.7	1	35	18.7	231	334	58.7	84	33	4	1	18.7	0.83	60	50	28.9	11.0	5.1
Cortez	304	51.7	23.8	6	20	17.8	225	384	58.0	83	35	5	4	17.2	0.86	60	51	30.0	8.4	5.4

Section XXI

Field Plot Durum Quality Tests

– 1998 Crop

LOCATION

PAGE #

Langdon, ND

1

Field Plot Durum Quality Tests - 1998 Crop

LANGDON, NORTH DAKOTA

CULTIVAR	TW (lb/bu)	1000		Size			Wheat			NIR hard- ness	SEMO			Mix pat	Specks /10 sq in	SEMO		Falling number (sec)	Spagh color		Firm ness (g/cm)	RES (%)
		KWT (g)	LG (%)	SM (%)	Moist (%)	Pro (14% mb)	Ash (14% mb)	ext (%)	SEMO		L	b	L			b						
BEN	63.4	48.5	92	0	9.0	13.2	2.01	116	64.9	85.3	30.2	2	5	12.1	0.64	328	63.6	50.1	6.5	5.9		
LLOYD	61.2	45.8	82	1	10.2	12.0	1.72	112	63.5	86.1	32.4	2	14	10.9	0.66	387	62.3	48.9	5.8	6.3		
MEDORA	64.2	43.9	87	1	9.2	12.6	1.73	122	65.2	85.8	33.3	3	6	11.5	0.62	392	63.8	53.4	7.4	5.4		
MONROE	63.4	49.5	91	0	9.1	12.8	1.69	114	63.5	85.4	31.9	2	9	11.6	0.60	380	62.7	51.6	5.8	6.0		
MUNICH	63.0	46.3	85	1	9.2	12.9	1.67	127	64.6	85.2	32.9	2	1	11.7	0.63	361	62.6	52.9	5.6	6.4		
RENVILLE	63.0	43.7	75	2	9.9	12.5	1.65	132	64.1	85.6	30.5	2	9	11.2	0.62	376	64.4	51.4	5.9	5.9		
RUGBY	64.0	43.9	81	1	9.8	12.8	1.67	124	63.0	84.8	32.0	1	8	11.8	0.64	356	62.5	50.5	4.7	6.4		
VIC	63.5	48.1	90	0	9.3	13.4	1.64	128	62.9	85.2	30.9	2	12	12.2	0.62	377	62.3	50.2	6.7	5.8		

Section XXII

Durum Specials - NDSU

— 1999 Crop

LOCATION	PAGE #
Sidney, MT (PYT, IE)	1
Sidney, MT (PYT, IA)	2

1999 Durum Specials - NDSU

Sidney, MT
PYT (I E)

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
87363	61.0	52.4	83	2	66.0	12.5	137	85	24	3
87364	59.0	46.7	75	2	65.7	12.6	127	84	24	3
103	59.1	49.8	79	2	66.0	13.0	129	84	23	3
104	60.1	45.2	80	2	62.3	12.5	132	84	21	4
105	60.1	47.1	82	2	61.7	12.5	133	83	21	3
87368	58.5	44.1	79	3	61.9	13.1	121	83	23	3
87369	58.1	42.7	71	5	61.9	13.0	118	84	22	2
87371	61.7	45.7	82	2	65.1	12.2	125	84	25	3
87372	61.0	42.4	73	3	67.6	12.3	127	85	23	4
110	62.2	44.2	81	2	68.3	11.4	126	85	21	3
111	61.6	39.7	69	4	66.0	12.2	123	84	25	3
112	61.6	40.7	72	3	67.0	11.9	120	85	26	2
87375	61.4	43.7	79	3	67.0	11.1	110	85	25	2
87376	61.4	43.1	78	2	67.0	11.0	115	85	25	2
87377	60.2	48.1	74	2	66.0	12.3	118	84	24	3
116	62.4	41.2	72	2	65.4	12.1	123	85	24	3
87379	60.1	44.2	72	3	66.7	12.0	130	84	23	3
87380	61.8	45.0	76	3	67.6	12.0	126	86	22	2
87381	61.4	41.8	72	4	66.7	11.2	114	84	23	1
87382	61.2	41.3	73	3	67.0	11.3	120	84	23	1
87383	60.3	33.6	42	10	64.2	12.4	125	84	25	2
87384	61.4	36.2	71	4	64.5	12.0	126	84	24	2
87385	61.6	36.6	62	5	64.2	12.2	131	84	24	3
87386	61.2	35.8	67	4	64.8	12.6	123	84	23	3
102	60.9	39.8	64	5	64.8	12.1	118	84	26	3
83388	61.4	35.5	53	6	65.4	11.8	114	84	27	3
87389	60.9	34.5	57	7	65.1	12.4	120	85	25	3
87390	62.1	37.6	53	7	65.1	12.5	126	85	25	3
87391	59.3	39.7	71	4	61.7	12.1	118	84	30	3
87392	59.0	37.5	65	6	61.9	12.3	113	83	29	3
131	60.3	38.3	45	7	64.8	11.5	119	85	22	2
132	61.4	40.2	65	5	63.2	11.7	124	84	28	3
87395	61.0	42.6	68	4	62.9	12.2	121	84	30	3
87396	58.2	42.7	80	3	64.8	13.4	124	83	27	3
87397	57.4	40.7	73	5	63.8	13.2	116	83	27	4
87398	60.6	42.4	73	3	63.8	13.2	139	83	25	4
87399	60.6	40.3	70	3	63.2	12.2	129	83	25	4
87400	62.4	45.7	74	3	65.7	11.3	114	84	30	3
87401	56.2	35.5	49	9	61.9	12.3	112	83	25	4
87402	58.2	37.5	61	5	63.2	12.2	116	84	27	3
141	58.0	44.2	74	5	64.2	13.7	126	83	25	3
87404	60.5	43.3	69	4	63.2	13.1	122	84	28	3
87405	62.0	41.7	74	4	63.6	11.8	119	83	27	2
144	61.8	37.2	57	4	61.3	12.8	130	83	29	2
145	62.8	38.9	67	5	62.3	12.7	130	84	28	2
87408	60.2	38.2	65	3	63.2	12.3	116	83	28	2
87409	61.8	43.9	73	3	65.1	11.3	116	85	27	2
148	62.2	44.8	79	1	65.7	13.6	128	84	26	3
149	62.2	48.5	87	1	65.1	12.0	129	85	27	2
MUNICH	62.2	42.0	77	3	66.0	12.8	143	84	28	2

1999 Durum Specials - NDSU

Sidney, MT
PYT (I A)

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
97001	61.4	41.5	66	4	66.0	11.4	128	84	28	2
97004	62.8	41.8	71	4	67.3	12.1	131	84	26	2
97007	63.6	46.7	82	2	66.7	12.4	143	83	31	2
97008	63.1	40.7	80	3	65.7	12.4	132	83	31	2
97009	62.6	42.2	57	3	66.7	11.3	136	84	24	3
97026	63.5	40.2	64	5	66.7	11.2	123	84	25	2
97027	62.8	40.5	72	4	65.1	12.0	135	84	24	2
97028	62.9	40.7	64	5	65.7	11.4	138	84	25	3
97029	63.1	43.7	67	3	66.0	11.5	142	83	25	3
97030	62.3	48.3	84	4	67.0	11.9	141	84	28	3
97031	62.2	47.4	83	3	67.9	11.3	125	85	27	2
97033	62.9	44.8	73	2	67.0	12.0	132	84	23	2
97034	62.8	42.7	65	4	66.7	11.4	129	85	24	2
97038	62.6	46.1	88	1	66.0	11.9	127	84	26	3
97040	62.1	41.2	76	2	66.7	11.3	114	84	29	2
97047	64.0	43.5	79	2	66.0	11.1	130	85	21	2
97061	61.3	50.3	87	1	65.1	11.6	131	84	26	3
97062	60.9	44.6	77	3	65.1	11.9	118	84	27	3
97068	60.7	43.9	70	5	63.2	10.9	121	84	29	2
97082	62.1	44.8	73	4	64.2	11.8	126	84	25	2
97084	62.4	47.1	83	2	65.7	11.5	129	83	26	2
97085	62.8	39.8	63	4	65.7	10.8	142	84	28	2
97086	61.0	38.6	58	5	64.8	11.7	131	84	29	2
97087	62.2	39.7	64	3	64.5	11.4	131	84	28	2
97088	61.8	45.2	80	2	64.1	11.8	136	84	26	3
97089	61.4	37.6	52	8	63.5	11.2	127	84	28	3
97090	62.0	38.9	56	6	64.8	11.8	135	84	26	3
97092	61.2	40.3	55	8	65.4	12.2	135	84	26	3
97598	61.7	47.4	86	4	66.7	12.8	141	84	27	3
97603	63.6	45.8	83	2	65.1	12.2	130	84	28	3
97643	62.6	43.5	75	4	68.3	11.7	127	84	29	3
97645	63.4	44.1	77	4	67.6	11.7	139	84	29	2
LLOYD	63.4	47.6	61	6	63.8	12.7	137	84	29	3
BEN	62.6	42.2	85	2	67.0	13.1	128	84	26	2
MAIER	62.9	42.6	77	3	65.1	13.2	134	81	31	3
PLAZA	62.3	42.4	77	2	66.0	11.5	128	84	29	2

Section XXIII

Durum Specials - Montana

— 1999 Crop

LOCATION	PAGE #
Bozeman, MT	1
Havre, MT	2
Moccasin, MT	3

1999 Durum Specials - Montana

Bozeman, MT

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
CI 15892	60.6	35.5	41	4	63.2	16.3	143	84	28	2
CI 17282	59.7	34.6	31	4	60.0	16.0	151	85	28	2
CI 17789	61.6	38.5	48	2	63.2	15.8	142	84	30	5
PI476211	59.6	38.0	45	5	60.4	14.4	134	84	30	4
WPBLAKER	61.0	42.6	72	1	61.9	14.1	145	84	26	5
DT 433	61.0	36.8	56	2	61.0	16.3	154	84	30	5
PI478289	60.7	45.0	75	0	61.9	15.6	147	84	29	6
PI510696	60.4	35.5	38	5	61.3	15.6	144	84	28	6
CANPLENT	61.0	38.5	53	3	55.7	15.6	156	84	30	4
CANKYLE	59.0	33.0	18	10	60.0	17.0	140	83	28	4
NDMUNICH	60.1	35.8	42	5	59.0	15.8	143	85	30	4
D87130	60.6	36.9	44	3	61.5	15.9	145	84	28	6
DT 380	59.1	35.2	36	6	58.5	16.2	134	84	28	4
D901313	60.2	36.6	43	4	58.5	15.4	149	85	27	5
NDBELZER	58.9	35.1	57	3	60.0	16.0	137	83	28	5
D89135	60.5	36.1	37	4	60.4	16.1	142	84	31	6
PI574642	59.8	33.6	67	3	62.0	14.9	111	87	13	6
PH894401	62.6	40.0	64	5	59.4	15.6	147	84	25	6
97DU2	58.2	35.6	49	5	60.4	16.3	134	83	30	5
D901442	62.1	39.2	64	5	59.4	14.9	128	85	28	5
D91080	59.4	33.8	29	9	59.6	15.1	133	84	31	4
D3100	61.2	40.7	56	4	62.3	16.1	148	84	26	6

1999 Durum Specials - Montana

Havre, MT

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
CI 15892	59.2	33.8	27	5	64.2	14.1	128	83	29	1
CI 17282	59.0	31.6	13	10	64.2	14.8	134	84	29	2
CI 17789	60.2	38.6	49	3	67.0	13.2	119	85	28	3
PI476211	58.3	35.1	17	8	61.7	14.3	115	84	29	5
WPBLAKER	60.6	37.5	49	3	64.2	13.1	122	84	25	5
DT 433	60.1	34.5	34	4	64.2	14.1	126	84	29	4
PI478289	58.7	36.8	46	3	65.1	13.6	119	84	29	4
PI510696	60.2	32.9	13	7	66.0	14.3	130	84	28	5
CANPLENT	59.0	33.4	31	4	61.1	13.6	129	85	30	3
CANKYLE	58.7	33.0	9	9	63.8	14.3	132	84	28	4
NDMUNICH	57.9	32.1	18	9	64.8	14.0	112	84	30	4
D87130	59.8	36.6	43	3	65.4	14.2	128	84	27	4
DT 380	58.5	33.8	30	6	63.2	13.6	115	85	27	4
D901313	58.8	31.3	16	10	64.2	13.5	131	84	26	4
NDBELZER	58.3	37.9	48	3	63.6	12.9	116	84	27	5
D89135	60.6	34.6	36	5	65.1	13.2	120	84	31	6
PI574642	57.8	30.6	37	3	66.0	14.2	99	84	14	7
PH894401	61.6	37.7	36	3	62.6	12.7	115	85	24	6
97DU2	59.1	37.2	47	3	62.6	13.1	119	84	28	4
D901442	59.7	33.4	32	3	64.5	12.9	116	85	27	4
D91080	58.1	31.5	16	4	62.3	13.2	110	83	30	5
D3100	61.0	36.9	44	2	65.1	14.7	136	84	25	7

1999 Durum Specials - Montana

Moccasin, MT

Cultivar	TW lb/bu	1000 KWT gm	Kernel Size		Semolina Extraction %	Wheat Protein 14%mb	NIR Hardness	Semolina Color		Mix Pattern
			%large	%small				L	b	
CI 15892	58.6	30.6	25	9	58.5	15.1	135	84	28	3
CI 17282	56.2	27.9	10	19	53.8	16.1	142	83	29	3
CI 17789	58.2	31.8	9	11	57.5	15.4	132	84	30	7
PI476211	56.6	32.9	9	13	55.8	15.3	134	83	29	6
WPBLAKER	59.1	36.6	42	6	58.1	14.1	136	83	25	7
DT 433	58.8	32.1	35	7	56.2	15.2	155	83	29	6
PI478289	57.4	33.8	37	9	58.1	15.4	142	84	29	7
PI510696	57.3	32.6	11	19	57.9	14.0	138	83	28	6
CANPLENT	59.1	33.2	29	8	58.1	15.3	142	83	30	6
CANKYLE	58.6	29.8	22	13	55.7	15.5	140	84	28	5
NDMUNICH	57.3	30.2	18	14	56.7	15.0	134	83	30	8
D87130	58.6	31.6	26	11	56.6	15.8	140	84	27	7
DT 380	57.6	30.0	28	13	55.2	15.0	131	84	28	6
D901313	57.0	28.2	8	22	53.8	14.5	130	83	28	5
NDBELZER	56.1	30.5	24	11	54.7	15.2	132	83	28	6
D89135	59.3	33.7	31	7	58.5	14.1	140	84	33	6
PI574642	55.7	27.6	21	8	59.6	13.6	80	86	13	6
PH894401	60.5	37.2	46	6	56.6	14.6	133	84	24	6
97DU2	58.1	33.2	36	6	57.5	14.3	129	83	29	5
D901442	61.0	33.8	41	6	58.1	14.9	150	83	28	5
D91080	58.2	30.1	16	13	54.7	14.4	141	83	30	4
D3100	59.5	33.7	38	7	61.0	15.7	139	83	26	6

